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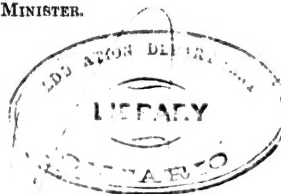
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SPECIAL REPORT
TO THE HONOURABLE THE MINISTER OF EDUCATION,
ON THE
ONTARIO EDUCATIONAL EXHIBIT,
AND THE EDUCATIONAL FEATURES
OF THE
INTERNATIONAL EXHIBITION,
AT
PHILADELPHIA, 1876.

BY J. GEORGE HODGINS, LL.D., DEPUTY MINISTER.



"Thus we see that these great international Exhibitions were the first grand levers which were used to uplift the nations to a higher plane of intellectual life, and to demonstrate to them, beyond power of controversy to gainsay, the great practical truth which underlies the trite maxim which we all understand, that "*knowledge is indeed power*"—power, which is irresistible—power, which endows delicate, and even complicated machinery, almost with the instincts of life—power, which, with unerring penetration and force, seizes upon salient points; and, by controlling, turns even opposing forces into obedient servants of a superior will and design."—Pages 231-232 of this Report.

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PREFATORY NOTE.

THE accompanying Report contains a brier survey of the whole of the educational exhibits of the various countries and states represented at Philadelphia—including our own—nearly forty in all. It also contains an account of the present state of education in some of the more important countries. To this I have added illustrative statistics of the latest available date, not only of these countries, but of those which had no educational exhibit at Philadelphia. I have also added, where practicable, an analysis of the systems of education in operation in the principal countries.

So remarkably onward has been the progress of popular education in some of these countries, within the last fifteen or twenty years, that the fact itself, as well as the extent of that progress, as detailed in this report, will be a surprise to many. This is notably the case in regard to Russia, Japan, and Brazil. China, too, is laying the foundation of an effective system of instruction for her people. England, it will be seen, has, within the last seven years (for the reason detailed in the Report), been compelled to take vigorous and comprehensive measures to recover lost ground; while Austria, Italy, France, and other countries named, are now taking energetic steps to improve their systems of popular education.

The information in regard to the systems of education now in operation in Russia, Prussia, Sweden, Belgium, the Netherlands, Portugal, the United States, Brazil, Argentine Republic, Chili, Japan, and Egypt, which I have given from authentic sources, will be found to be more or less complete; while that in regard to England embraces a trustworthy sketch of the period of the administration of the Parliamentary grants for elementary education from 1839 to 1876. To this I have added a full analysis, by competent hands, of the present Education Code of 1876. The whole of this information I have endeavoured to elaborate with great care. I trust, therefore, that it will be found to be both interesting and useful. It will enable those interested in the subject to obtain a comparatively satisfactory bird's-eye view of national education (from the recent standpoint of the Centennial Exhibition), not only of the forty states and countries which were educationally represented there, but also of the almost equal number which had no such representation at the Exhibition.

I have also inserted valuable papers on the "Special Educational Exhibits" at the Centennial; on "European Educational Systems and Policy," and a series of "Lessons from the Centennial," from an American standpoint, in which it will be seen Ontario receives more than one "honourable mention." At the conclusion of this Report I have given, in the form of a lecture, a popular sketch of the whole Exhibition itself, prepared for delivery at Teachers' Associations. In it I have noted the progressive position occupied by "education" as a "group" or section at the various international exhibitions.

At the close of the paper, I have sought to draw such practical lessons for ourselves, as a careful study of the Exhibition, and especially of its educational features, warranted me in doing.

In the Appendix I have inserted an interesting sketch by P. Cunliffe Owen, Esq., of the South Kensington Museum*—the outgrowth of the first International Exhibition at London in 1851, and the parent of all subsequent Educational Museums. I have added a brief account of the Educational Museums and Depositories recently established at St. Petersburg, Paris, and London, &c.

The Report itself is more elaborate than I had at first intended it should be. I felt, however, that it would defeat the primary object of such a Report, and greatly lessen its value, if it did not contain an educational outlook (such as the Exhibition was designed to afford), and of as complete a character as possible, of the various educating countries in the world. This was, nevertheless, found to be a task of no ordinary magnitude and difficulty, owing to the fact that the educational exhibits at Philadelphia did not include those of more than one half of the educational states and countries of the world,—and that more than one third of those represented there were of a very meagre and elementary character. The deficiency had, therefore, to be supplied from sources difficult of access, and sometimes contradictory and unsatisfactory in character. The information given has, however, been carefully prepared from the latest authorities, and condensed as much as possible.

The entire educational survey which I have attempted to make is, on the whole, most gratifying and satisfactory. It cannot fail to impress the reader with two things: 1st. That other countries are making educational strides even more rapid, and educational progress even more substantial than our own; and 2ndly. That, in this great educational race, our highly favoured Province, untrammelled by the many embarrassing educational traditions of Europe, and not subject to the fluctuations of executive authority, as in the United States, not only can, but has every national incentive to, put forth every effort to maintain the high position which, by common consent, she obtained at Philadelphia last year.

J. G. H.

* Secretary to the British Commission, under the Presidency of the Prince of Wales, of the Paris Exhibition of 1878.

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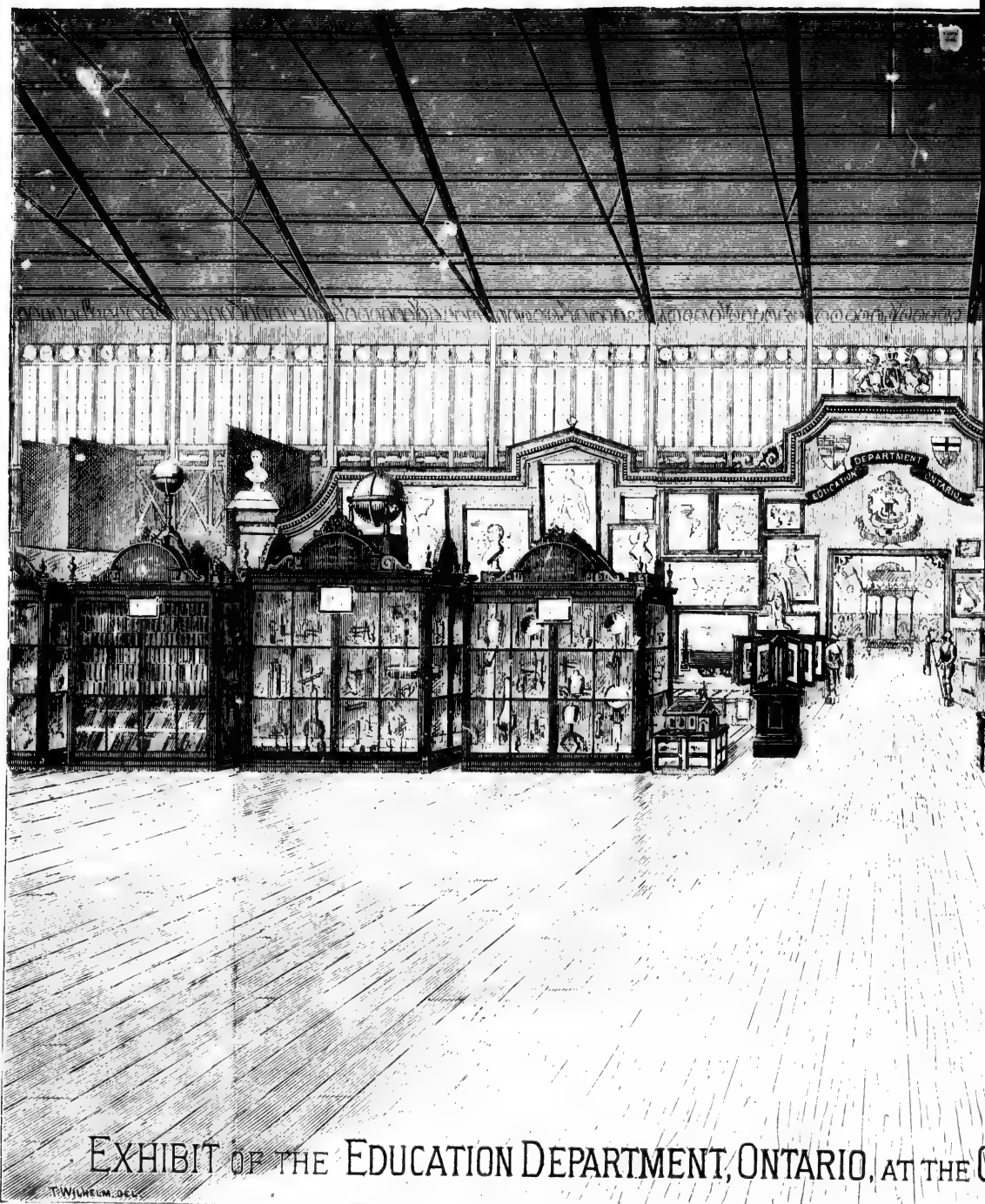
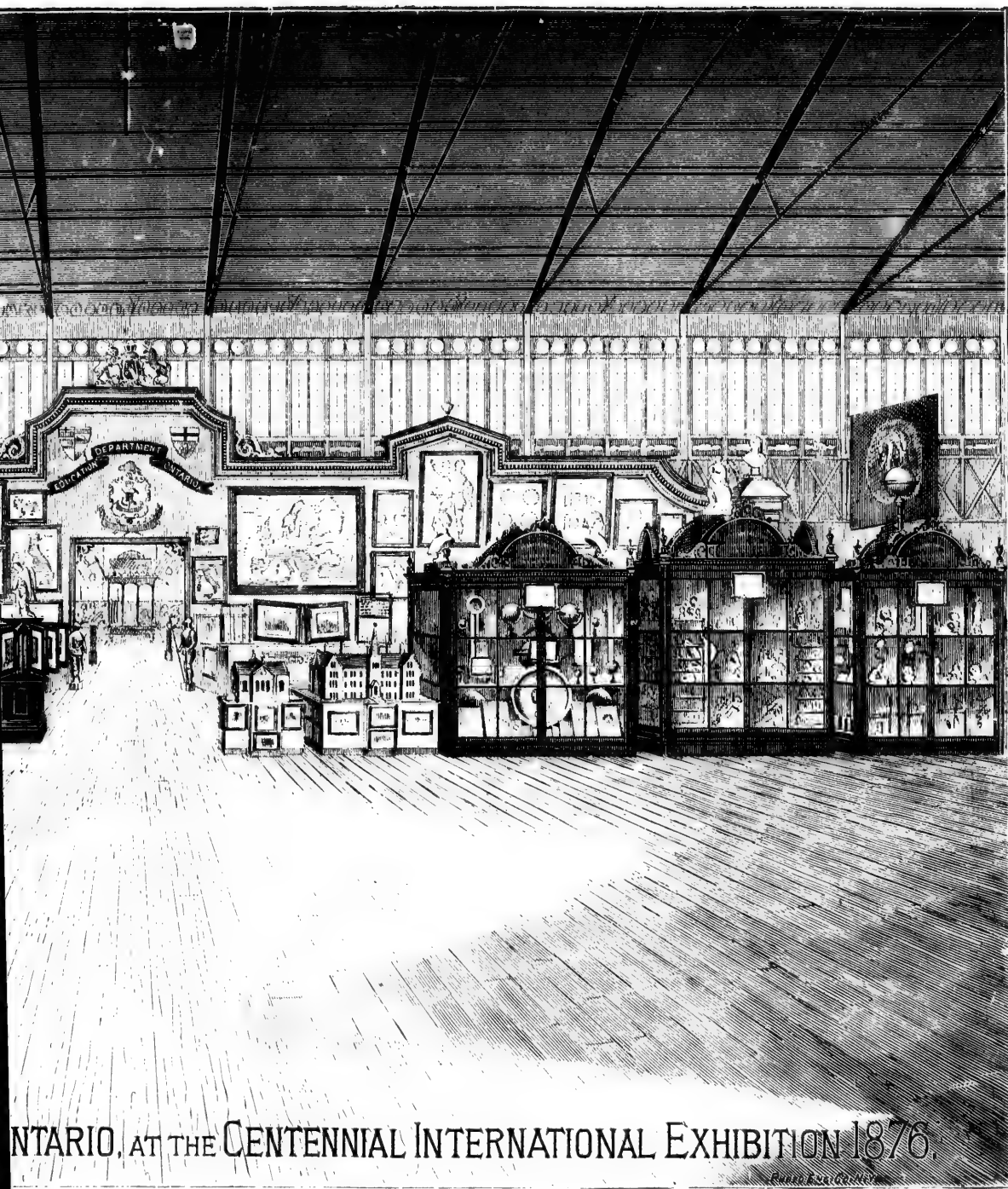


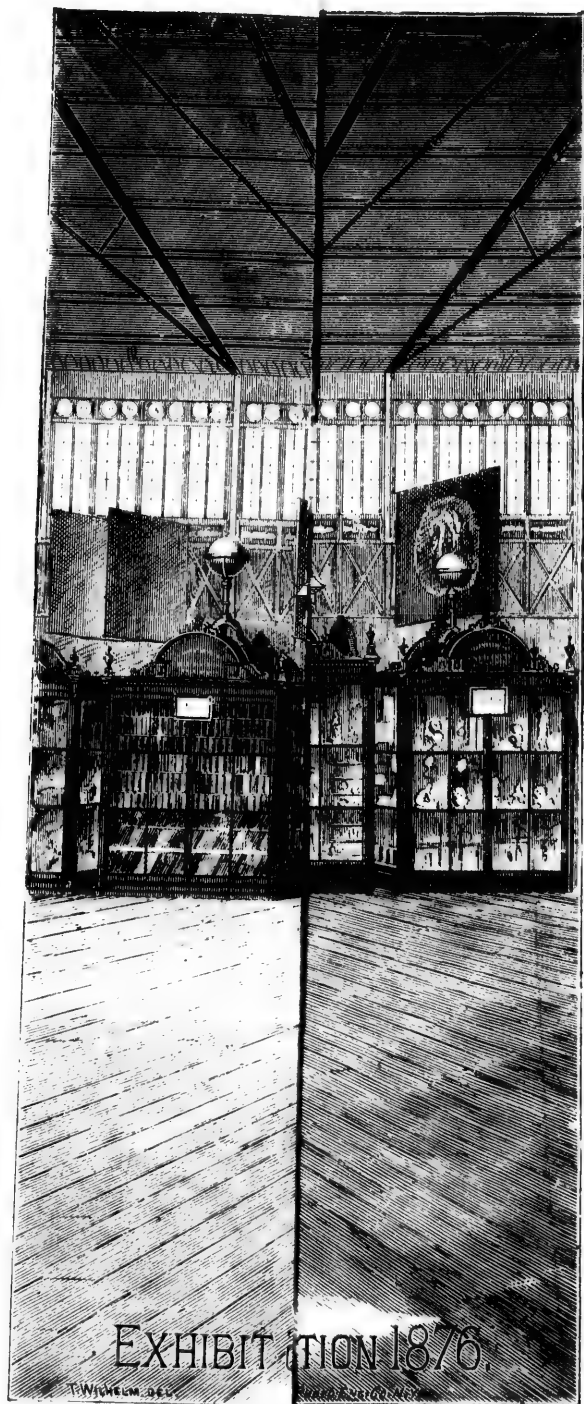
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ONTARIO, AT THE CENTENNIAL INTERNATIONAL EXHIBITION 1876.

CHAS. E. COLEMAN



EXHIBITION 1876.

T. WILKINSON DEL.

W. B. BROWN SCULPT.

REPORT.

Education at the Centennial Exhibition, 1876.

The Honourable ADAM CROOKS, Q.C., M.P.P.,
Minister of Education,
Toronto,

SIR,—I have the honour to present to you the following Report on the educational features of the recent Centennial Exhibition at Philadelphia.

INTRODUCTORY

In order to illustrate more clearly the position of Ontario at that Exhibition, I think it desirable to refer briefly to the gradual growth of the educational features of former International Exhibitions.

When it is considered how highly every civilized nation at the present time regards the diffusion of education amongst the whole body of the people as the chief essential to its well-being, and an evidence of its social and industrial progress, it is surprising to find that in the great Exhibitions of 1851, 1855, and 1862, so little prominence had been given to educational matters.

PART I.

THE INTERNATIONAL EXHIBITIONS OF 1867 AND 1873.

1. THE PARIS EXHIBITION OF 1867.

It was not until the fourth great Exhibition, held in Paris in 1867, that the subject of education, as a distinct department or feature of the exhibition, received formal recognition. By the Imperial Commission under Napoleon III., it had a group assigned to it under the general designation of the "Department of Social Science, Group X, classes 89 and 90."

In so extensive a "department" there were nearly twelve hundred exhibitors—more than one-half of them, as might have been expected at an exhibition in Paris, were from France; 139 were from Spain; 86 from Austria; 68 from Italy; 53 from Wurtemberg; 43 from Great Britain (35) and her colonies (8); 21 from Belgium; 16 from Prussia; 14 each from Sweden and Denmark, and the remaining 150 from eighteen different nationalities. The number of Prizes awarded was 428, of which France received 278; Italy, 29; Prussia and North Germany, 24; Austria, 22; Spain, 19; Great Britain, 13; Belgium, 10. The remaining 33 were divided among the exhibitors of thirteen nationalities.

As it is interesting to know what subjects were placed in classes 89 and 90, Group X, and received prizes, I insert the following list:—

<i>Specifications, Class 89.</i>	<i>Prizes.</i>	<i>Specifications, Class 90.</i>	<i>Prizes.</i>
Governments and founders.....	16	Governments	3
Primary Normal Schools.....	1	Classes and courses for adults.....	19
Plans, furniture, &c.....	23	Special schools and schools of design	14
Articles for the Infant Schools.....	1	Models and methods.....	15
Educational collections.....	2	Works of pupils.....	7
Hygienic and gymnastic collections..	4	Works of pupils	7
Religious Instruction.....	3	Special secondary instruction	15
Reading	8	Collections " "	20
Writing	21	Technical Instruction { Agriculture.....	9
Arithmetic and Metrical system.....	9	{ Commerce	1
Accounts	3	{ Mechanic Arts.	22
Grammar.....	4	{ Marine.....	8
Geography	18	Libraries, societies, etc.....	19
Natural History.....	2	Authors of { Reading books.....	16
Singing	20	{ Pedagogic works	4
Design	7	{ Classical works.....	12
Sewing	3	{ Agricultural works.....	7
Authors of primary books	14	{ Industrial works	5
Editors.....	19	{ Military works.....	2
Blind, deaf mutes, idiots..	32	Editors of special works	18
Total prizes	210	Total prizes.....	221

The Honourable J. W. Hoyt, American Education Commissioner to the Paris Exhibition, thus characterizes the objects exhibited in these two classes. He says:—

"The objects themselves numbered many thousands, one entry—as that of a school-house, for instance—often including many individual articles collectively shown by the nation, society, or individual making exhibition. The variety of objects was only less than their number, extending through the whole range appropriate to the work of education, and affording ground for a discussion of every educational theme, from the material appliances essential to the infant school, up through every grade of intermediate schools, general and special, to the scheme of the Royal Academy or University. In the Park were school-houses, with furniture, apparatus, and numberless appliances, together with several pavilions embracing a multitude of educational appliances used in Schools of agriculture and mechanical industry, and the no less numerous products of the handiwork of the artistic or scientific skill of the pupils. In the Palace were numerous halls, alcoves and attractive corners, filled with charts, maps, atlases, globes, orreries, slates, copy books, contrivances to aid in teaching children to read, write, and calculate; text-books from the primer to the calculus and the classics; schemes and reports of the Educational Institutions of every grade and character; copies of annals published by Educational Societies, Institutions and States; the implements used in gymnastic exercises, and the appliances requisite to instruction in the arts of design, architecture, painting, and sculpture. Some of the halls embracing these, and countless other objects equally appropriate to the Educational Department, were very beautifully and effectively set off by portraits, busts, and statues of distinguished teachers and patrons of education in all countries, as well as by the inscription of the names and living words of such as, by their labours for the diffusion of knowledge among men, have made them immortal."

This collection of Educational objects awakened the greatest interest among the Teachers in France. Mr. Hoyt (already quoted) says, "that over 12,000 of them visited the Exhibition, while, from all parts of the world, zealous men and women came expressly to avail themselves of such facts, principles, and suggestions, and sources of information as the Exhibition afforded."

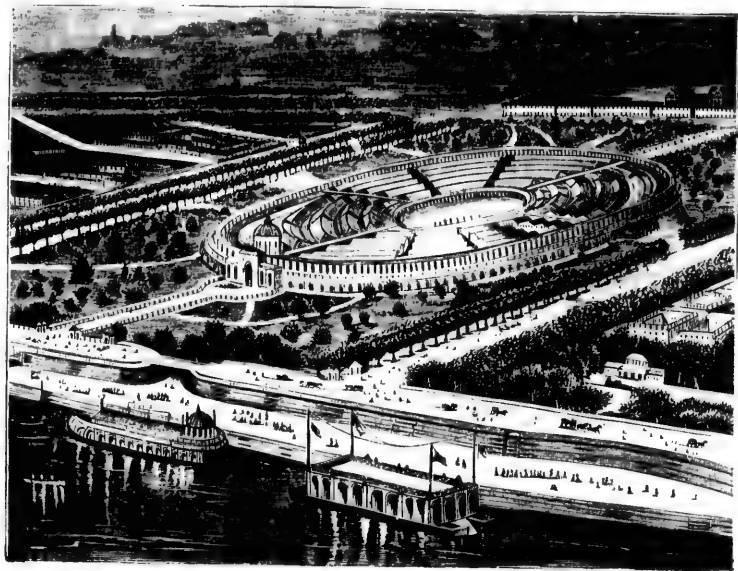
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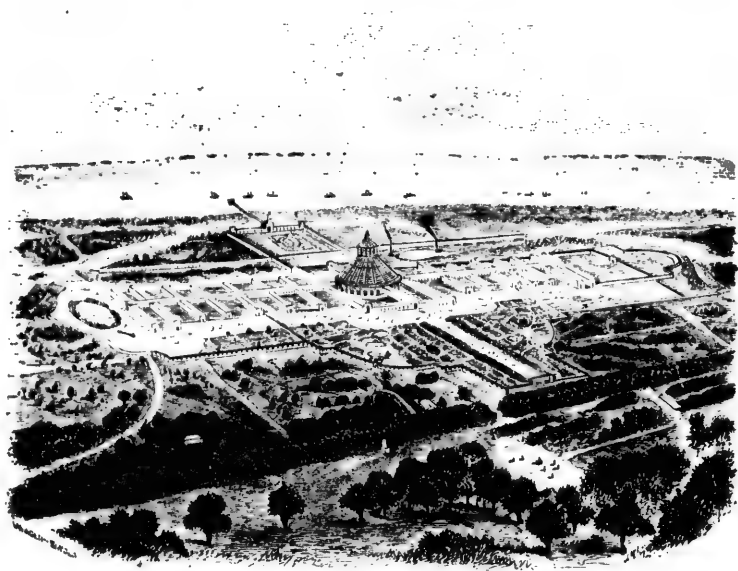
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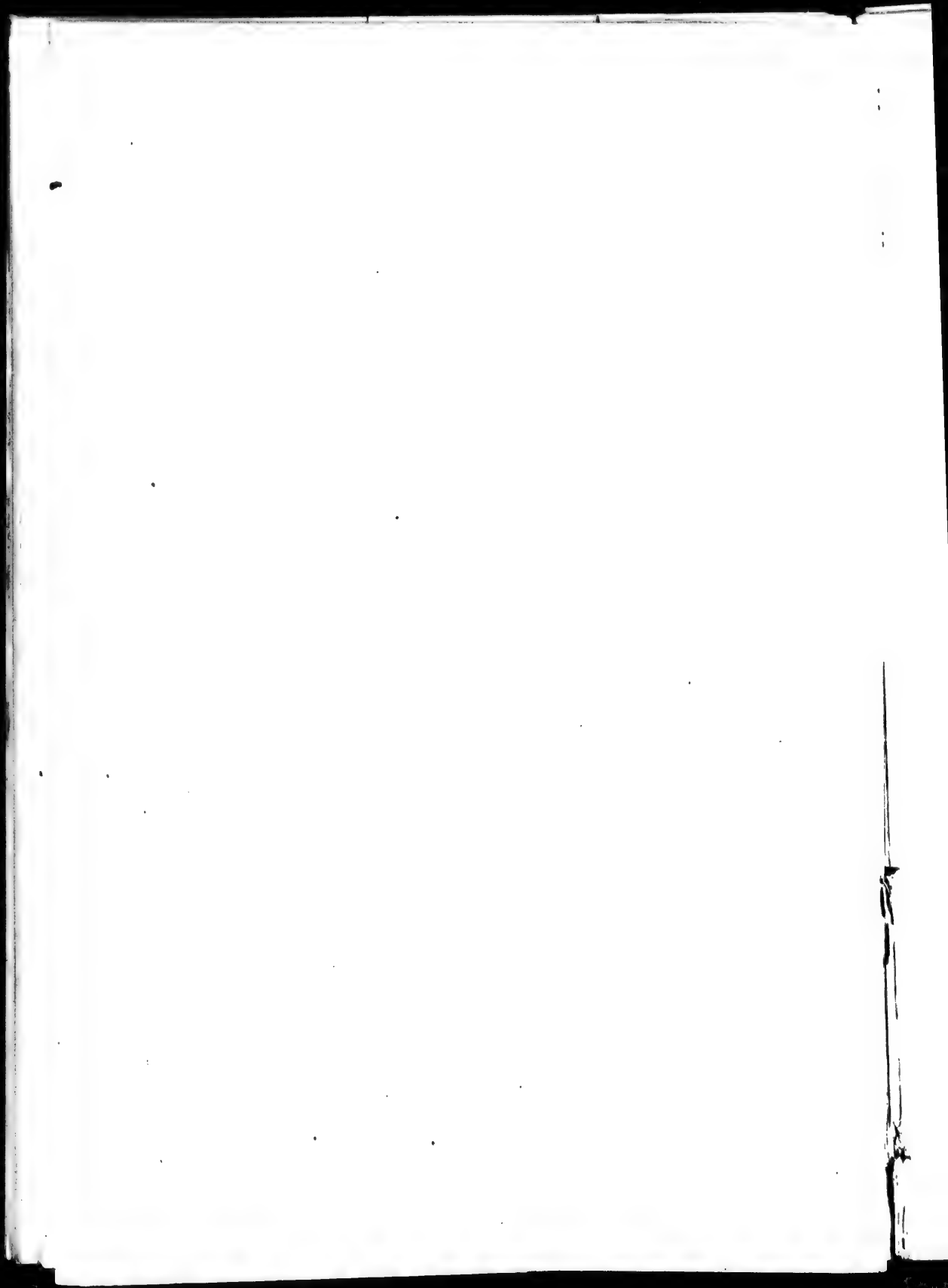
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THE PARIS INTERNATIONAL EXPOSITION OF 1867.—Page 2.



THE VIENNA INTERNATIONAL EXPOSITION OF 1873.—Page 3.



2. THE VIENNA EXHIBITION OF 1873.

The great success which attended the formal recognition of the subject of Education at the Paris Exhibition, induced the Austrian Imperial Commissioners to give, if possible, still greater prominence to it at the Vienna Exhibition in 1873. Owing to the enlightened foresight and zeal of the Director General, (Baron Schwarz-Senborn,) now Austrian minister at Washington, the educational features of that Exhibition were particularly good. On this point, General Eaton, the able United States Commissioner of Education, adds this strong testimony.

"The programme of the Department of Education at Vienna, produced upon my mind a most forcible impression. The breadth of view, the all comprehending grasp of the subject, worked out with such perfection of detail, gave evidence that a mind of no ordinary calibre had originated this noble conception. It seemed to me as if the man that had worked out the programme of that vast Exposition had risen above the sphere in which we move, according to the ideal of a grand principle of vision, and had looked down upon Austria, full of love for every being in the entire population, man, woman, or child, and had recognised the necessities of that people and the process by which their interests would be elevated and harmonized, and by which the whole nation was to be lifted in rank among the kingdoms of the earth. It seemed to me that the author had brought to this conception, not only this great love for the people and original ability for arrangement, but the experience of the world. That is to say, he had successfully endeavoured to bring the experience of the world, which belonged to such an enterprise, down to the Exposition at Vienna, and had incorporated and expressed that experience there. It seemed the scheme of a great philanthropic statesman, planning first for the advancement of his own people, but broad enough to include all the people of the world, who were freely invited to come to Vienna and see the great results of civilization. I can never forget the impression made upon me by that magnificent programme, which not even the grand results of the completed design, which it was my good fortune to behold, could obliterate from my memory."

The main features of the Paris Educational Exhibit of 1867, were repeated at Vienna in 1873. The "Group XXVI, Education, Teaching, and Instruction," was divided into sections and sub-sections as follows:—

Section I.—Infant and Primary Schools.

- 1st. Sub-section.—Exhibitions of various Governments.
- 2nd. " Kindergarten.
- 3rd. " National and Lower Middle Class Schools, Models, Plans and Material.
- 4th. " Teaching by means of Visible Objects, Pictures, Reading and Writing.
- 5th. " History and Geography.
- 6th. " Natural Science and Physics.
- 7th. " Drawing and Calligraphy.
- 8th. " Music and Singing.

Section II.—Secondary Instruction at Middle Schools.

- 1st Sub-division—Drawing and Plans.
- 2nd " Science and Gymnastics.
- 3rd " History, Geography and Literary Instruction.

Section III.—Special Schools, Upper Technical Schools, and Higher University Instruction.

Section IV.—Accessory means of Education and of Instruction—Learned Societies—Societies for the spread of Instruction—Scientific Discoveries—Support and Moral Improvement of Agricultural Classes of Artizans.

In regard to national representation in the Educational department of the Vienna Exhibition, Rev. Mr. Fussell, the British Educational Commissioner, in his report says: "The chief European nations contributed largely to this Department of the Exhibition. Great Britain alone stood all but aloof*; and her absence was frequently referred to in language of friendly regret. . . . The United States of America was worthily represented. The contributions of British India possessed a peculiar interest, and those of some other countries were not undeserving of attention.†

"Austria, Sweden and the United States exhibited school-rooms of full size, completely furnished and fitted for immediate occupation. The Educational buildings of Hungary, France, Bavaria, Saxony, Belgium, and Switzerland, were chiefly represented by the plans, drawings and models.

"The most remarkable model exhibited was one of an admirable establishment or depot recently created by the City of Paris, for issuing to its schools once a quarter—or in urgent cases more frequently—everything in the shape of Educational furniture, books, apparatus and materials, all of the most approved description, and in great part manufactured on the premises."‡

The Hon. J. W. Hoyt, who was also American Education Commissioner to Austria (as he was to France in 1867), thus refers to the absence of an English Educational Exhibit at Vienna: "It is surprising that no effort was made by the British Government to insure a fair illustration of the means now in operation for the enlightenment of the too long neglected masses."

Speaking of the British India exhibit, however, he says: "It is certainly remarkable that the far-off and less civilized British India should have quite surpassed the United Kingdom in a representation of education at Vienna. To do this required but little effort, however, and was certainly accomplished—the Indian Government sending more than four times as many contributions, and such as better represented the condition and progress of education."

In order to make this summary of the educational features of the Vienna Exhibition the more complete for the purpose of comparison with those of the succeeding Exhibition at Philadelphia, I have availed myself of a condensed sketch on the subject, in General Eaton's Report for 1873. The criticisms in this sketch are chiefly taken from German sources, and are therefore the more valuable, as the German educationists are generally regarded as competent critics in all matters relating to schools and school administration.

EDUCATIONAL EXHIBIT OF THE UNITED STATES AT VIENNA.

In regard to the American Educational Exhibition, a writer in the *Freie Pädagogische Blätter*, of June 21st, 1873, says: "I have travelled a great deal and have seen many rural School-houses, have taught in several myself, but such a school-room as this I have never before seen anywhere. It is almost provoking to see how the Americans produce something so beautiful from such a cheap and simple material (wood), and then to remember how insufficient our School-houses are, which often are erected at a considerable expense. The Americans are very practical in the erection of their School-houses, and are masters in combining the beautiful with the useful. This school-room is calculated for forty-eight children; and how roomy, how airy! It does an old teacher's heart good to see this, and he sighs, 'Alas, if this were so everywhere!' * * * The only fault

* So, at the Philadelphia Exhibition, Mr. Whiting, an English correspondent, and a writer of considerable repute, speaking of Ontario, says:—"Her school exhibit is not only better than of any state in this country, but it is the only thing which redeems the British School Exhibit, and I have written this home."

† Mr. Fussell says:—"The specimens contributed from India were especially interesting, as serving to illustrate the character of the work accomplished by the native schools, and the appliances in use among them."

‡ This description of the Paris Depository applies to that for Ontario in almost every particular, only that in Ontario there is no restriction as to the periods of supply. A sketch of this Depository will be given towards the close of this Report.

to be found with the American school benches is that there is no difference in size and in the relative position of their different parts. * * * The physical geography is excellently represented on large maps, to the great honour of M. Guyot, whose name they bear. * * * In the text books, which lie about on the desks, we were particularly pleased with the good thick paper, something which our own 'blotting paper text book publishers might make note of.' General Eaton adds: "This writer also expresses his admiration of the coloured natural history charts, the charts showing the different colours, 'something new to the German Schools,' and the calculating machine; but confesses his surprise that America, the home of machinery, in its rural school does not exhibit a single physical instrument, not even a thermometer."

GREAT BRITAIN AT VIENNA.

"The English Educational Exhibition," the *Freie Pädagogische Blätter* says, "is even less than unassuming, and really offers next to nothing. A series of maps intended as aids for instruction in natural sciences, some geographical maps, and particularly a geological map of Queensland are highly commended. A mineralogical collection is considered worthy of mention; also, an exhibition of Bibles printed in all the different languages of the world."

FRANCE AT THE AUSTRIAN EXHIBITION.

The London Engineering says of the French Exhibition:—"The French gallery shows that much attention and a large share of talent are concentrated upon devising the best means of primary instruction, of smoothing the asperities, and rendering the first stages of learning easy and agreeable to youth. We know no country in which such vigorous and successful efforts are made to encourage and stimulate the young student. There are arithmometers, to facilitate the simple rules; geographical reliefs in plaster, to give accurate notions of the fundamental definitions; variously-coloured maps, showing by the difference of shades the altitudes of countries above the sea level; and models of solids, with sections, to render tangible the principles of practical geometry. After a careful examination of the various systems of drawing, we think that the French department is pre-eminently the best. We mean the course of linear drawing, with zinc—and plaster—models of penetrations and architectural designs, as well as the card board arrangements for descriptive geometry of the Christian Brothers." The *Bund*, an official Swiss paper, also remarks:—"The final impression made upon our mind on leaving the French exhibition is about the following:—Higher instruction, as far as it can be judged by such exhibition, seems to flourish, also the elementary schools of the City of Paris, while in the Provinces both higher and elementary instruction seem to be neglected."

GERMAN EXHIBITION AT VIENNA.

Of the German exhibition the *Freie Pädagogische Blätter* says:—"The German educational exhibition is—next to the Austrian, which, of course, from local causes was principally favoured—the most complete of the whole exposition." Regret is expressed that it was not arranged on a uniform plan. "Objects from one and the same State are placed in different parts of the building, which prevents a clear and comprehensive view of the whole. Among the aids to instruction especially recommended are 'the paste-board models of blossoms, and other portions of plants on a very large scale, exceedingly useful in classes where it is impossible to procure fresh plants for every scholar; * * * the physiological and anatomical models of Fleischmann, of Nürnberg, and Ziegler of Frieberg; the physical apparatus for elementary schools; coloured charts for the illustration of botany and natural history, all on a very large scale; the globes, telluria, maps and other aids to geographical instruction; the drawing copies and models; and the chemical laboratory exhibited by Hagersdorff—one of the finest objects in the educational exhibition." The work done by scholars in real schools and industrial schools is highly recommended. Among the specimens of woman's work, the amount of useless embroidery is commented upon somewhat severely, and it is remarked that "this branch of instruction is, in most cases, far from what it ought to be." The *Bund*, an official Swiss paper, in noticing the German exhibition, makes special mention of the collection of ores, minerals, and fossil-plants; the new apparatus for instruc-

tion in mathematical geography, which meets a long-felt want; the aids to object-teaching, with a view to instruction in natural sciences in elementary and secondary schools; the wall charts for instruction in botany and zoology, and the aids to instruction of the blind. Of the work performed by scholars, this paper says (referring especially to the industrial schools of Hamburg and Württemberg):—"the drawings, plaster-casts, &c., show us what the youth of our age are learning, and how greatly the community is profiting by such institutions. We know full well that the work of the scholars which is on exhibition is not in every respect the proper criterion for the standard of excellence of a school, for talented scholars will produce astounding results, even in a badly conducted school; but the mass and variety of work on exhibition nevertheless shows that a great deal is taught, and a great deal is learned. The drawings from several industrial schools in Bavaria are excellent, and great admiration is expressed for the work done by the Munich Kindergarten."

THE EXHIBIT OF SWITZERLAND.

The same paper also says of the Swiss educational exhibit:—"The preliminary exhibition held in Winterthur, in February, in 1873, was far more imposing than the one at Vienna. Many very valuable educational objects, collections, apparatus, maps, &c., have been sent to Vienna in vain, because they have not either been unpacked or are totally hidden from view. The most significant feature of the exhibition, as illustrating the progress of education, and the changes in the character of instruction during the last few years, is the collection of text-books, apparatus, and charts for instruction in natural science. A set of these charts, adapted for every grade of instruction, attracted universal attention in Vienna. The Zürich exhibition displayed a collection of these objects for primary and secondary schools as complete as we have not seen them in any other canton in the country." The *Bund*, speaking of what has been done for education in Zürich during the last few years, says:—"The authorities have thoroughly understood the spirit of the times. They have succeeded in bringing the great achievements of science into a happy relation with the elementary schools, and thereby with the education of the whole nation. A healthy and beneficial mutual relation has been established between the university and the primary school, such as is scarcely found anywhere else. The *Freie Pädagogische Blätter* says:—"We must make special mention of all the aids for instruction in natural sciences, for these are truly admirable in their selection and arrangement, all of the three natural kingdoms being well represented by a school-collection. The object of the former is explained by its name, the latter is collected by the scholars themselves. Exact rules regulate the manner of making these collections. The collection of physical apparatus seems to have been made on the principle 'little but good.' The aids to geographical instruction are equal to the demands of the time. Also by magnificent illustrations are the young made acquainted with the history of their nation."

AUSTRIA AT HOME.

The *Bund* pronounces the Austrian education exhibit "magnificently gotten up and beautifully arranged. The material for every grade of instruction is exhibited in natural divisions and groups, corresponding with each other. The only novelty in the primary division is a rotating slate of galvanized rubber, which, if durable, will doubtless be introduced into many schools. The herbaria of the scholars in an elementary school in Styria are highly praised. The collection of physical apparatus is very fine; also the anatomical preparations for superior schools. For the first instruction in geology and paleontology the geological pictures will render good service."

HUNGARY AT VIENNA.

The *Freie Pädagogische Blätter* also finds especially admirable the geographical part of the Hungarian exhibition. The maps are "in the highest degree creditable." The "relief maps" are particularly excellent. Illustrations of natural history in the shape of charts show that the study of nature is not neglected in the Hungarian Schools. Collections of "admirably-prepared insects, anatomical specimens, and elegantly-finished physical apparatus complete the aids for instruction in natural sciences." "For object-lessons there are

a few, but very useful, pictures. In some of these we see an idea which a future time will carry out—group-pictures executed in a truly artistic manner." Mention is made of "two-seated school-benches," "drawing-copies," and "a rich collection of needle-work done by scholars." "In quantity Hungary might have given us more, but as regards the quality, we must express our entire satisfaction."

SWEDEN AT THE AUSTRIAN EXHIBITION.

The *Blätter* commends the simplicity and practical character of the Swedish school-house, and says:—"The Swedish Government does more than almost any other European Government for good school-houses, especially in a sanitary point of view. The Swedish Government not only distributes plans of school-houses, but accompanies these by a printed pamphlet, giving numerous and valuable hints as regards the location and surroundings of the school, the quantity of space to be allowed to each scholar, the different methods of ventilation, &c.

"A very important problem, the construction of school-benches, may be almost considered as satisfactorily solved in the Swedish School-house. The seats which are exhibited have, it is true, as yet only flat boards, which deny the scholar every comfort, and the slightly slanting position of the board does not compensate for this defect; but not one of the seats is without a back, which, although essential to a comfortable seat, is found in but very few of our School-houses. We must draw special attention to the fact that in the Swedish School-house there is a separate seat for each child. The long school-bench should not be tolerated anywhere, but separate seats should be introduced into all schools, as the Swedes and Americans have done. A peculiar feature of the school-room is a number of guns and a drum, used in the military gymnastics and the practice of arms, which forms an important branch of instruction in all the elementary schools.

"Religious instruction is obligatory and occupies a considerable number of hours every week. Of the 212 objects exhibited in the Swedish school-house, no less than 20 have reference to religious instruction. The only object among them deserving attention is a collection of pictures for instruction in Biblical history, which are really valuable. All the books in the Swedish school-house are got up in the most practical manner; the binding is elastic and cannot be torn. This also applies to the people's library, which, numbering several hundred volumes, forms a specialty of the Swedish school-house. Fifteen years ago, the first people's libraries were established in Sweden, and now, in accordance with the resolutions of the Swedish school-law, nearly every village possesses one. No better place could be found for it than the school-house, and no better librarian than the teacher.

"Among the aids for instruction in natural history, the glass cases with insects deserve special mention, on account of their practical arrangement. These cases have not only glass lids and sides, but also glass bottoms, and the insect can, therefore, be inspected from all sides. The physical apparatus which is exhibited, excels through accuracy and the greatest possible simplicity. We were struck with a large drawing slate made of dull glass, which forms an excellent drawing-surface for coloured pencils. A part of the drawing copies are in the shape of gigantic wall maps. The calculating machines are few in number, which may be accounted for by the circumstance that instruction in arithmetic in Sweden aims more at rapid skill than at a clear understanding of the arithmetical process; but a calculating machine illustrating the decimal system is considered worthy of mention. An interesting feature of the exhibition is a collection of aids for instruction in vocal music, which is much cultivated in Sweden."

BELGIUM AT VIENNA.

The same journal remarks that, on entering the Belgium Educational Exhibition, one sees at once that in Belgium, with its busy marts of industry, but little has been done for the education of the masses. The Belgian department excels in the many mathematical objects made of tin. The collection of apparatus for perspective drawing is of real value, as well as the wire net-work, also for drawing purposes. In a calculating-machine we were struck with the combination of vertical and horizontal wires. A beautiful map of West Flanders, in re-

lief, painted blue, and the towns marked by shining white spots, which can be seen from afar, is extremely useful for large classes. The female work exhibited is characterized by simplicity and usefulness. Besides the objects mentioned, we find nothing in the Belgian department which is worthy our attention.

ITALY AND HER SCHOOLS.

Of Italy it also says:—"The Italian Educational Exhibition shows us more than anything else, the trans-alpine superior and special Schools. The technical Schools particularly, are represented in a brilliant manner. This is not astonishing, for in a country which has produced the men who pierced Mont Cenis, we expect to find a high degree of technical education. The elementary schools are also well represented. A school bench is exhibited with a movable seat. We saw a similar arrangement in the French exhibition, but we cannot admire it. There is absolutely no necessity for turning seats. The finest part of the Italian elementary school exhibition is the female work. Here we see the artistic trait of the Italian nation. A great plastic model of Vesuvius deserves special attention. A skilful hand planned it, and it is in every way a most interesting object."

RUSSIA AT THE AUSTRIAN CAPITAL.

Widely varying opinions are expressed by the Swiss *Bund* and the Vienna *Freie Pädagogische Blätter*, concerning the Russian educational exhibition. The former says:—"The Russian educational exhibition is a mere rudiment compared with the other civilized States of Europe," and finds nothing worthy of remark but a series of "object lessons for the school and family."

The latter paper remarks:—"On visiting the Russian educational exhibition, we find occasion to rid ourselves of many a prejudice. Russia here appears very respectable, not by the number of articles exhibited, but by their excellence. The object lessons for the school and family are truly admirable. The work done by the inmates of the Warsaw Institute for the Blind, deserves to be mentioned, as well as two models of school desks. A box with arithmetical blocks is very practical, and it is only astonishing to find it in the Russian department, because the Russians are particularly fond of complicated calculating-machines. Russia has a great future, and even its small educational exhibition is a grain of seed from which much may be expected."

PORTUGAL AT VIENNA.

Of Portugal the *Freie Pädagogische Blätter* says:—"The Portuguese school-house makes a very pleasant impression from the outside, but inside it looks very empty. On the walls there are photographic views of school-houses, which show that the school-house exhibited cannot be considered a model. Among the few objects exhibited, our attention is first of all attracted by the school-desks, in which there is nothing remarkable, except that there are two seats screwed firmly to the floor belonging to every desk. Some pictures of parts of the human body elicit the enquiry, whether in Portugal drawing consists merely in copying, and whether in mathematical instruction no natural bodies are employed. Neither the one nor the other awakens a favourable opinion of the method of Portuguese educators. The cartographic exhibition comprised two maps, both of Portugal, one of them lithographed, the other drawn by hand."

PART II.

THE CENTENNIAL EXHIBITION AT PHILADELPHIA, 1876.

At the Vienna Exposition (as already intimated), the United States occupied a prominent and deservedly high place. Canada did nothing of material value educationally at any of the former Exhibitions, except sending some School reports and educational periodicals

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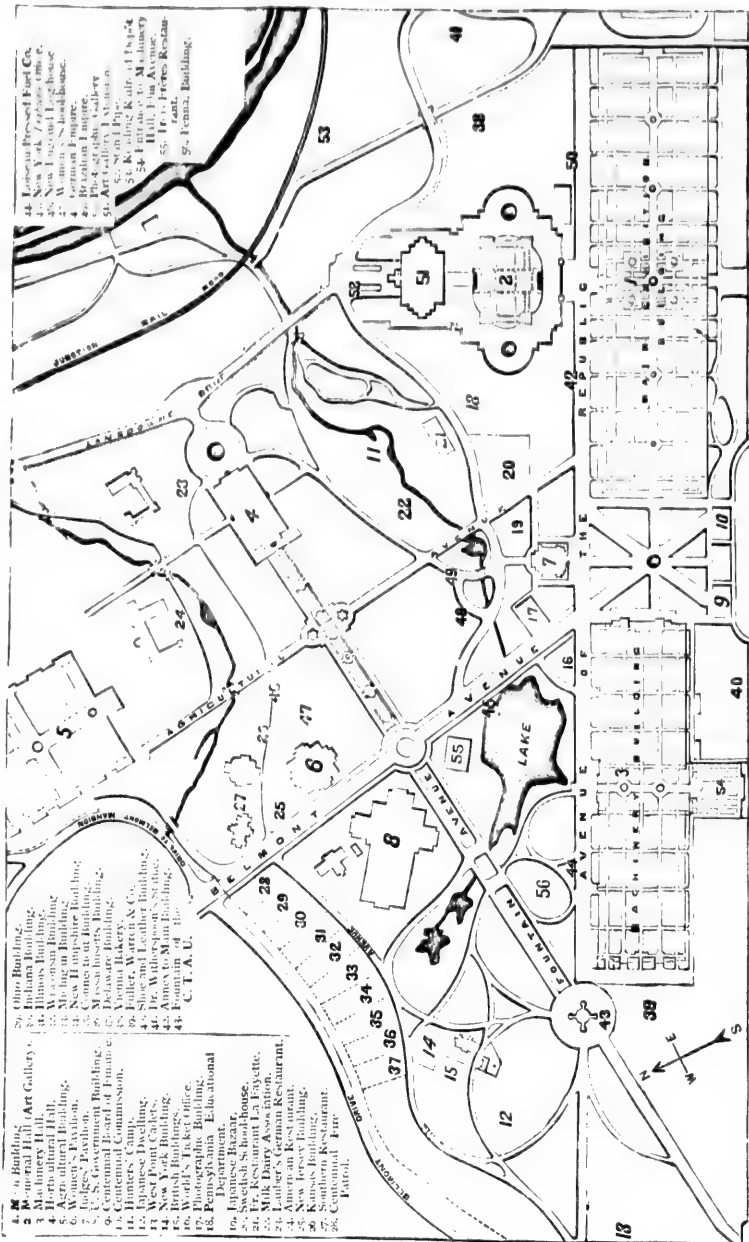
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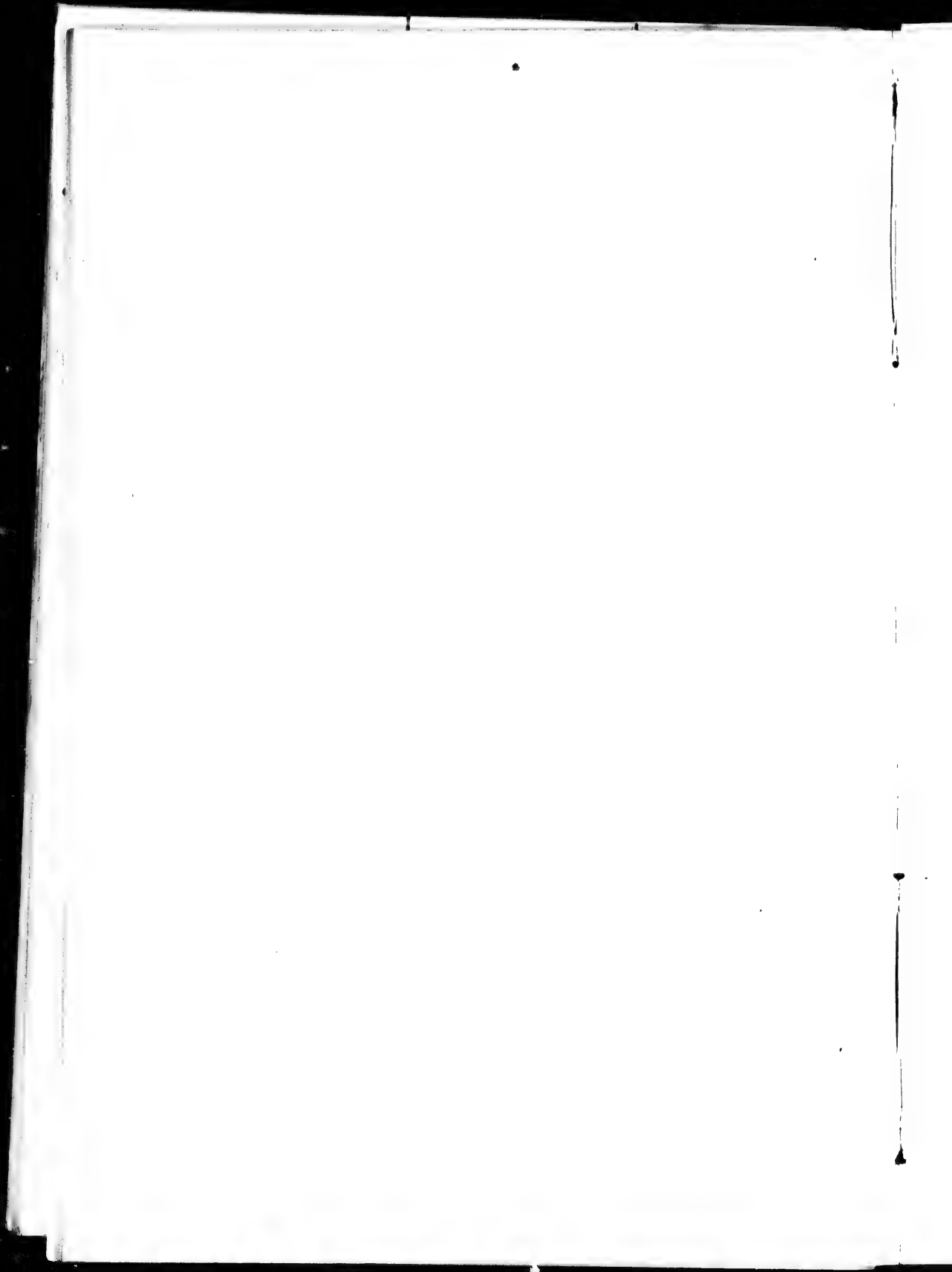
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PLAN OF THE CENTENNIAL INTERNATIONAL EXHIBITION GROUNDS.—Page 8.



rom the Province of Quebec.* Naturally enough, therefore, she is not thought of by the Austrian Commissioners. It was, therefore, felt that the United States alone represented North America in the matter of education. The Austrian Director-General accordingly wrote to the United States Commissioners, "urging in the strongest terms not to omit a full representation of American education, whatever else might be omitted." He said:—"The Exhibition of it made at Paris in 1867 so interested Europe that he was called upon by the people of Austria and Hungary from all quarters not to fail to have a good thorough representation of the American system, there."

This appeal was effectual, and "255 separate educational entries from the United States were made in Group XXVI. For this display, 48 educational diplomas and medals were distributed, while only 30 were given to the United States for its exhibition *in all other groups*."

I have already intimated the high opinion which the distinguished Director-General of the Vienna Exhibition (now Austrian Minister at Washington) had formed of the American educational exhibit there. The Americans themselves felt the grave responsibility which rested upon them to make the educational features of their exhibition a great success. The Honourable J. P. Wickersham, the enlightened Superintendent of Public Instruction in the State of Pennsylvania, felt the full weight of this responsibility, and at a meeting of distinguished educators held at Washington in January, 1875, on this subject, he said:—

"A gentleman prominently connected with the management of the Centennial, writes me within a few days: 'The Educational Department of the Exhibition is, in my humble judgment, one of the most important to be presented by our Government.' This is the universal sentiment. We have been boasting of our systems of free schools so long, that our people have come to think them the best in the whole world. They will demand their full representation. Failure here, will, I am satisfied, bring severe censure down upon the heads of the Centennial management, and prove deeply injurious to the school interests of the country. More strangers, too, from foreign countries, will visit the Exposition for the purpose of witnessing our school work, and acquainting themselves with our school systems, than for any other object, possibly than for all other objects put together. The American School-house at the great French Exposition is said to have attracted more attention than all else from America on exhibition. The test will be a severe one, I admit; but there is now no shrinking from it. Germany, Austria, Switzerland, France, England, Belgium, and Holland will come, doubtless, prepared to submit their systems of public instruction to a comparison with our own, and we must be ready to meet them with the best we have. It was easy to say at Paris, at London, at Vienna, that we left our best at home; but at Philadelphia we will be at home.

The Exposition must be a full, fair, and systematic representation of American Education. No possible credit can come to us by filling our space mechanically with the ten thousand articles that may be offered. The whole display must be representative, it must be somewhat of an organism, with its several parts nicely adjusted, if not closely related, to one another. In the selection and management of material, I take it, will be found the most difficult and delicate duty of the Central Commission; but, with a fair field in which to work, and a reasonable amount of money with which to pay expenses, a presentation of the leading features of American education can be made that will be an honour to the country, and a wonder to the older nations that may come across the water to compete with us."

* The Hon. P. J. O. Chauveau, LL.D., Q.C., late Minister of Education for the Province of Quebec, in his new work, *De l'Instruction Publique au Canada*, thus refers to the educational exhibit from Canada at the Exhibition of 1862 and 1867:—

"A l'Exposition de Londres, en 1862, et à celle de Paris, en 1867, le Département de l'Instruction Publique envoyait des collections des rapports des deux journaux, des livres approuvés pour les écoles, des sièges et pupitres en usage, etc. Une médaille de bronze à Londres, et une médaille d'argent à Paris, furent accordées au surintendant, principalement pour la rédaction des deux recueils pédagogiques." Page 152.

When however, it had been first decided by the American people to hold a grand International Exhibition in the United States in honour of their Centennial, energetic steps were taken in that country early in 1874, so as to secure, at that important gathering, a fitting representation of the educational enterprise and growth of the Republic. A meeting of representative educationists was convened at Washington by General Eaton, the United States Commissioner of Education, in the month of January, 1874, at which a series of recommendations were issued to the educationists of "each State and Territory in the Union," inviting them to co-operate in this important matter, and suggesting the best way in which they could most effectively do so. In January, 1875, another meeting on the same subject (to which we have already referred) was convened at Washington to appoint an Executive Committee to co-operate with the Centennial Commission in this matter.

In this Province nothing, however, was done towards taking part in the Exhibition until the autumn of 1875. Some hesitation was felt when the question was considered as to how we ought, without discredit to ourselves, to enter into a competition with other and more advanced countries, especially the United States, in a subject requiring so many years, and such favourable opportunities for development. It was, however, thought desirable that while efforts in almost all other departments were being energetically put forth by the people of Ontario, in response to the friendly invitation of our neighbours, the Education Department should endeavour to contribute something which might show that satisfactory progress had been made in our educational system during the first twenty-five years of its existence, as well as in our material industries. It was due also to the Legislature and people of Ontario that this opportunity should not be lost for comparing the working of our popular system of education with that of older communities circumstanced somewhat like our own, and so justify the Legislature and the people in their efforts and liberal expenditure for this important cause.

PART III.

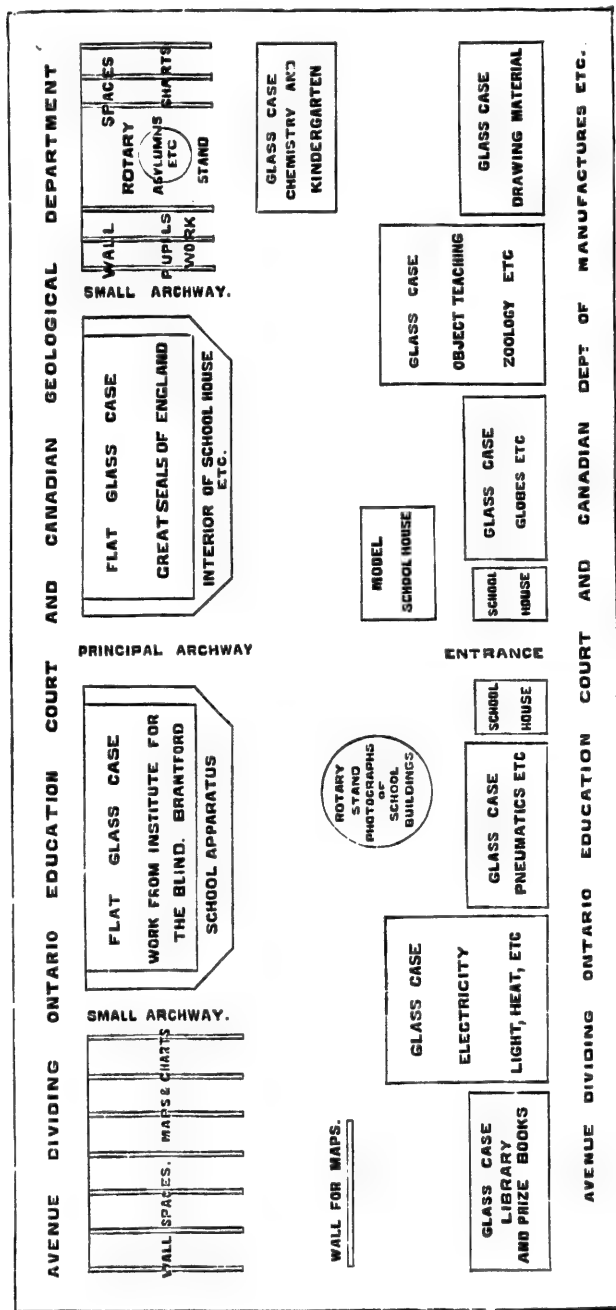
PROCEEDINGS OF THE EDUCATION DEPARTMENT.

Under these circumstances, and before his retirement, the Reverend Dr. Ryerson, late Chief Superintendent of Education, at the request of the Government, as conveyed to him by you, authorized me to prepare a scheme in detail (which I did) of the proposed Ontario exhibit. He also issued a circular, based upon that scheme,* to the Inspectors and School Trustees of Ontario, in November, 1875, urging them (and suggesting means by which they could do so) to contribute specimens of pupils' work, and photographs of their school buildings, to the Educational Exhibition at Philadelphia, which was to be held in May of the following year.

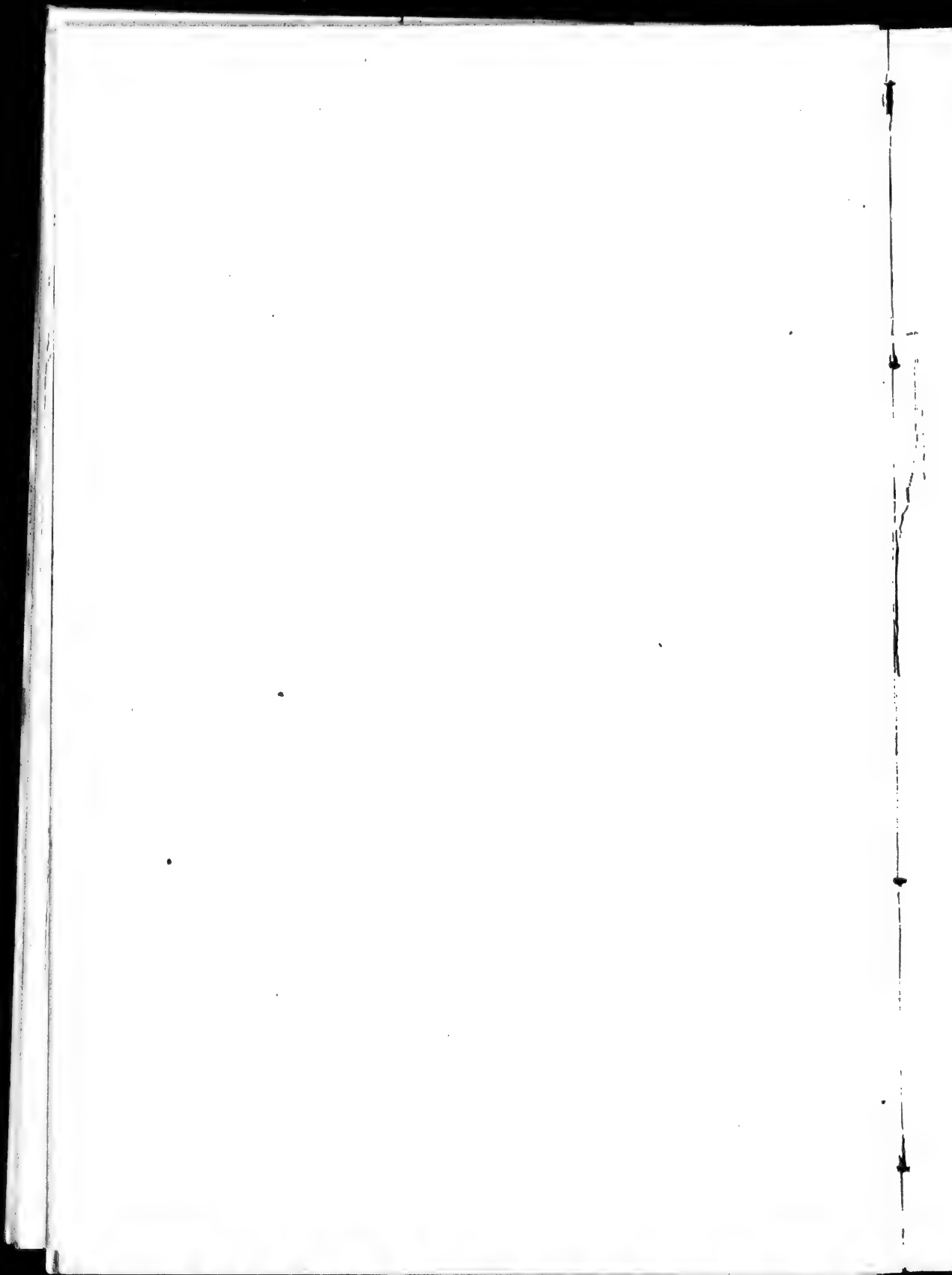
Owing to the shortness of the notice and other causes, the number of the contributions received from the various schools to the Exhibition was comparatively small, but they were, nevertheless, sufficient to illustrate the nature and progress of the pupils in their work, and the style and character of the School-houses in our cities, towns, and villages.

It was also thought desirable to illustrate other features of our school system in their

* See correspondence in the *Appendix*.



GROUND PLAN OF THE ONTARIO EDUCATIONAL COURT, CENTENNIAL INTERNATIONAL EXHIBITION.—Page 10.



growth and progress, which would prove both interesting and instructive. To these points I shall refer hereafter.

The Centennial Commissioners having constituted Honourable General Eaton's Bureau at Washington, "the Central Agency for carrying out the educational plans of the Exhibition," a sufficient number of copies of the "Practical suggestions respecting the preparation of educational material for the Exhibition," by General Eaton, were procured from him, and circulated throughout the Province, with a view to assist in providing suitable articles and specimens of work for the Exhibition. The result was that we were enabled to procure a number of photographic negatives of School buildings in cities, towns, and villages, and also a variety of pupils' work, from which a careful selection was made for the Exhibition. The photographs were all enlarged to a uniform size, and these, together with photographs of Universities, Colleges, and some prominent private Schools, were mounted uniformly, and arranged on a handsome revolving stand for the Exhibition.

In order to show to what extent it was designed to illustrate the subject of Education, and to provide for its display in the Exhibition, I shall here quote the following educational classification, as published by the Centennial Commissioners, and then show to what extent we were able to comply with the request made to us :—

REVISED CLASSIFICATION OF EDUCATIONAL SUBJECTS, BY THE CENTENNIAL COMMISSIONERS.

I.—Educational Systems, Methods and Libraries.

Class 300.—Elementary instruction ; Infant-schools and Kindergarten, arrangements, furniture, appliances, and modes of training.

Public schools: Graded schools, buildings and grounds, equipments, courses of study, methods of instruction, text-books, apparatus, including maps, charts, globes, &c. ; pupils' work, including drawing and penmanship ; provisions for physical training.

Class 301.—Higher education ; Academies and high schools.

Colleges and universities : buildings and grounds ; libraries ; museums of zoology, botany, mineralogy, art, and archaeology ; apparatus for illustration and research ; mathematical, physical, chemical and astronomical courses of study ; text-books, catalogues, libraries, and gymnasiums.

Class 302.—Professional schools : Theology, law, medicine and surgery, dentistry, pharmacy, mining, engineering, agriculture and mechanical arts, art and design, military schools, naval schools, normal schools, commercial schools, music.

Buildings, text-books, libraries, apparatus, methods, and other accessories for professional schools.

Class 303.—Institutions for the instruction of the blind, the deaf and dumb, and the feeble-minded.

Class 304.—Educational reports and statistics : National Bureau of Education ; State city, and town system ; college, university, and professional systems.

Class 305.—Libraries ; History, reports, statistics and catalogues.

Class 306.—School and text-books : Dictionaries, encyclopædias, gazetteers, directories, in lex volumes, bibliographies, catalogues, almanacs, special treatises, general and miscellaneous literature, newspapers, technical and special newspapers and journals, illustrated papers, periodical literature.

II.—Institutions and Organizations.

Class 310.—Institutions founded for the increase and diffusion of knowledge : such as the Smithsonian Institution, the Royal Institution, the Institute of France, the British Association for the Advancement of Science, and the American Association, &c., their organization, history and results.

Class 311.—Learned and scientific associations: Geological and mineralogical societies, &c., engineering, technical and professional associations, artistic, biological, zoological, medical societies, astronomical observatories.

Class 312.—Museums, collections, art-galleries, exhibitions of works of art and industry; agricultural fairs; State and county exhibitions; national exhibitions; international exhibitions; scientific museums and art-museums; ethnological and archaeological collections.

Class 313.—Music and the drama.

Of these classes we were enabled to provide more or less for illustration, from Ontario, in the following:—

Class 300: Kindergarten appliances; Public schools, buildings, equipments, courses of study, methods of instruction, text-book apparatus, including maps, charts, globes, &c., pupils' work, including drawing and penmanship, provisions for physical training.

Class 301—Higher Education: High Schools; Colleges and Universities; course of study, catalogues, (or calendars).

Class 302.—Professional Schools: Normal Schools, buildings, text books, apparatus, methods, etc.

Class 303.—Institutions for the instruction of the Blind, and the Deaf and Dumb.

Class 304.—Educational Reports and statistics; province, city and towns, colleges, etc.

Class 305.—Libraries: reports and catalogues.

Class 306.—School and text books, dictionaries, encyclopædias, geographies, catalogues, general and miscellaneous literature.

Class 312.—Museum collections; works of art and science

From the foregoing it will be seen that, with the exception of classes 310, 311 and 313, viz., national scientific organizations, learned societies, and music and the drama, we were enabled to send more or less illustrations on all of the other classes enumerated in the Educational programme of the Centennial. We were also enabled to send exhibits in other departments not enumerated on the prescribed lists, as I shall explain.

These exhibits were designed to illustrate (1) the extent and variety of the School appliances and material for aiding the teacher in his work at the disposal of the Department; (2.) the best facilities for supplying Schools with varied illustrations in the several branches of study, as well as providing prize and library books for the pupils from the Depository branch of the Department, by means of the large supplies kept in stock. (3.) We also included in our exhibit photographic illustrations of the various public buildings in the Province, such as the University of Toronto, and the Universities of Trinity, Victoria, and Albert Colleges, Knox College, De La Salle Institute, the Ladies' Colleges at Hamilton, Brantford, Whitby and Cobourg, and the Public Institutions under control of the Government.

PART IV.

ONTARIO EDUCATIONAL "EXHIBIT" AS SET UP AT PHILADELPHIA.

The whole number of articles sent by us to Philadelphia was nearly 2,000, valued, when "set up," including fittings, at about \$10,000. They were enumerated in a "catalogue of exhibits" extending to 64 pages, which was freely distributed to visitors during the Exhibition.

The position of the Ontario Educational exhibit in the main building was admirable. It was situated in the midst of the group of England and other colonies, and at the end of an avenue leading up from the arch forming the entrance to the whole exhibit of the "Dominion of Canada" in the main building.

The space finally allotted to the Ontario Department, was 110 feet in length by about 25 in breadth. At the back of the exhibit, was a partition 30 feet high surrounded by a heavy, deep cornice, designed and prepared in Toronto, as were the whole of the decorations. In the centre of partition and surmounting the archway, were the Royal Arms, underneath which were the arms and motto of the Department ("Religio, Scientia, Libertas"), and the words in large letters: "Education Department, Ontario."

In the space allotted to us in the Canadian court, were a number of glass cases placed in symmetrical order, and fitted with the various articles exhibited. Although the general plan and principal features of the exhibit were sketched in Toronto under my supervision, as directed, yet the whole arrangement at Philadelphia of that exhibit was left to Dr. May, Superintendent of the Educational Depository, aided by his skilled assistants, Mr. J. Carter, of Toronto, and Mr. A. F. Potter (formerly of Toronto, who kindly volunteered his valuable services in setting up the exhibit). The taste and judgment which Dr. May displayed in grouping and arranging the material placed at his disposal, was highly commended by all parties. The exhibit thus arranged, deservedly gave grace and finish to the whole display grouped about it, of which it formed the central part.

On either side of the avenue leading from the geological display of Canada (as shown in illustration No. 1), and forming the main feature of the Educational exhibit, were three large glass cases—one of them a double case, in which were tastefully arranged and classified the various objects exhibited.* Two of the cases of the left (as shown in illustration No. 2), contained Philosophical apparatus, classified to illustrate the various branches of Physics; the other case contained a sample collection of library and prize books, together with those relating to the teachers' professional education—the whole arranged so as to correspond with the printed catalogues. The three cases to the right, contained globes, astronomical apparatus; kindergarten and natural history; object lesson appliances; chemical laboratory, and drawing models and material; together with a collection of allegorical figures and small busts of eminent men. These cases were surmounted with life-size busts of Shakespeare, Herschel, Newton and Faraday, as well as those of the Prince and Princess of Wales.

PART V.

CHARACTER AND SPECIALITIES OF OUR EXHIBIT.

In the centre of the Educational Exhibit, and grouped about the entrance leading from the admirable geological display of Canada, were some of the specialities of our collection (as will be seen in the Illustrations). These consisted, among other things, of exterior and interior models of School buildings; † a revolving stand containing a number of photographs of Schools, Colleges, Universities, and public buildings of Ontario; photographs of the Education Department, and of the Normal Schools of Toronto and Ottawa; a collection of the Great Seals of England, from William the Conqueror down to Her Majesty the Queen; raised maps of Europe, Greece, Italy, France, Palestine, etc., and two figures in armour—one

* The illustrations inserted give a very good view of these cases and of the articles which they contained.
 † These models were prepared in Toronto under my direction, and, in one or two cases, were taken from illustrations contained in the second edition of a work on "The School House, its Architecture, etc," which I had published last year. Two of these models have gone to Japan, and one to the proposed American Educational Museum at Washington.

at either side of the entrance itself. Within the cases, and grouped historically, were several busts of noted Greek, Roman, French, Spanish, Italian, Swiss, Belgian, American, German, and English writers and scientific men. These, with a number of statuettes of German Emperors, beautifully coloured, *en costume*, constituted a most interesting ethnological collection. These, and fuller details of our exhibit, will be more systematically set out in the classification of the entire collection, which will be found on page —.

It was, however, universally acknowledged by all of the educationists who visited the Exhibition, that the chief excellence, as well as the special characteristic of the Ontario educational exhibit, was its comprehensive and varied collection of educational appliances, in the shape of maps, charts, globes, diagrams, models, object lessons, and a most extensive variety of school apparatus—from the simplest kindergarten “gift” or object, up to the more complicated instruments designed to illustrate the several departments of Natural Philosophy and of the Natural Sciences, etc. The number of articles in this extensive collection, which was in our exhibit, was over 1,000, and was the result of years of careful selection and adaptation for schools under these heads.

Another practical feature of our exhibition, which for years had received a large degree of attention from the Department, and which has been the means of greatly stimulating teachers in their profession was, a collection of books (called the “Teachers’ Library”), which had almost exclusive reference to the science and art of teaching, the discipline and management of schools, national education, school architecture, educational biography, the science of language, and other practical subjects, relating to the Teachers’ profession.

Nearly 400 volumes of books on these important subjects, were selected and sent to the Philadelphia Exhibition. It is gratifying to know that so highly were these invaluable aids to a teacher in his work regarded, that the Education Commissioners from Japan ordered the entire collection for the Education Department of that Empire. As an evidence of how much in earnest the Japanese are in this matter, I may mention that two excellent works in the collection, prepared by the Honourable J. P. Wickersham, Superintendent of Public Instruction in the State of Pennsylvania, on “*School Economy*,” and “*Methods of Instruction*” have been already translated into Japanese, and have been the means of inciting the teachers of Japan to greater skill and intelligent effort in the discharge of their responsible labours. It was doubly gratifying to Mr. Wickersham to receive copies of these works in a foreign dress from the Japanese Commission, and to see them also placed among the articles on exhibition in the Japanese Educational Court.

A cursory glance at the various educational exhibits at Philadelphia would enable the visitor to group them under three heads, viz. :—

- 1st. Those which consisted chiefly of “results” of education, *i.e.*, pupils’ work.
- 2nd. Those which consisted mainly of the “appliances” of education.
- 3rd. Those which combined “appliances” and “results.”

As a general rule the various American State exhibits consisted chiefly of “results,”—that is examples of pupils’ work, with large and valuable collections of educational reports and illustrative statistics. The Russian, Swiss, Belgian and Japanese, combined appliances and results in a greater or less degree. Ontario alone (although she had a few examples of pupils’ work in two or three departments) confined her exhibit almost exclusively to a systematic and scientific “exposition” of educational appliances, and objects of historical

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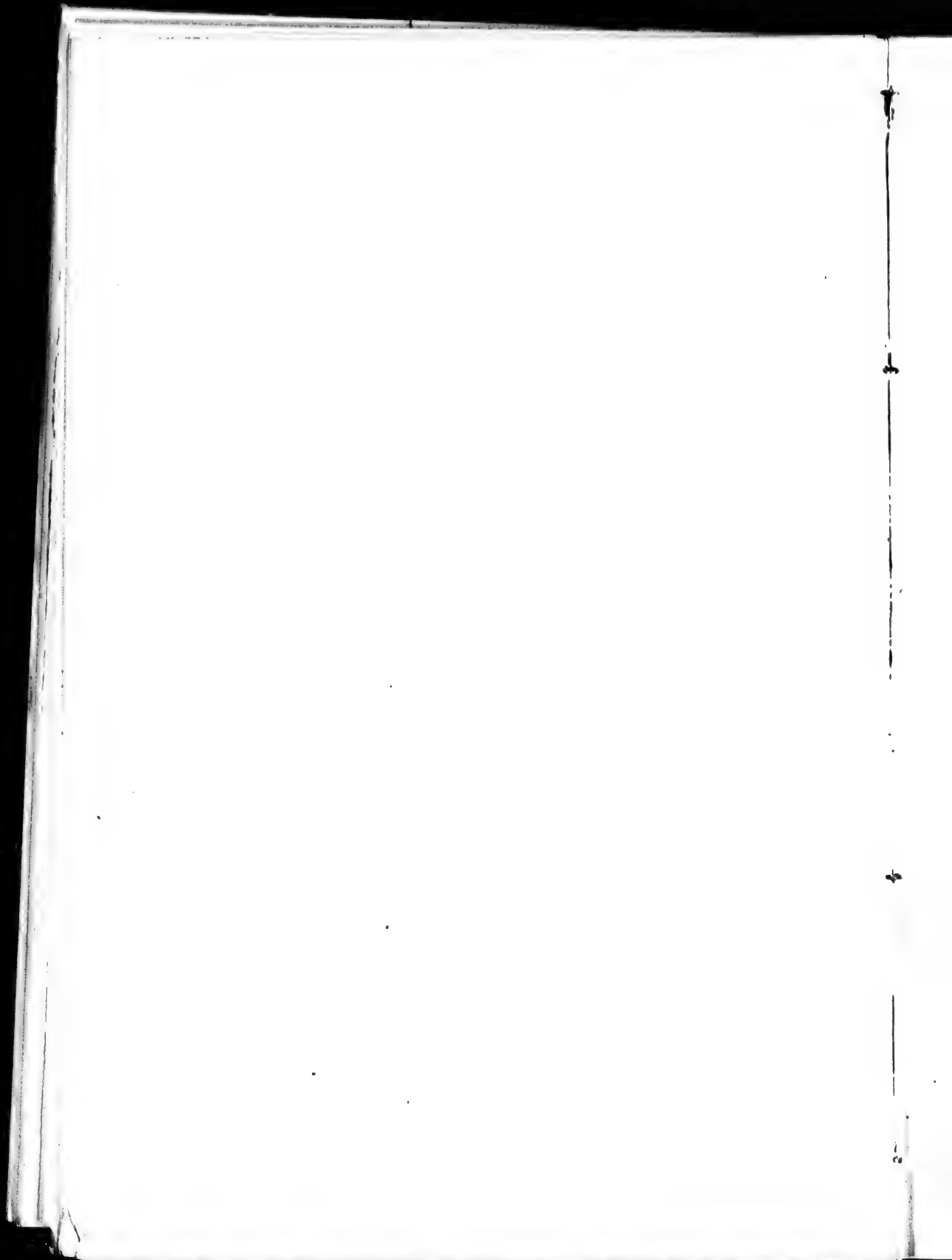
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No. 2, ONTARIO EDUCATIONAL EXHIBIT.—NORTH-WEST VIEW.—CENTENNIAL INTERNATIONAL EXHIBITION.—Page 14.



or practical interest from our educational museum. She was desirous of exhibiting the means by which she sought to build up the material or practical part of her system, and illustrated it with samples of the "tools" with which her educational workmen were furnished or were available for their use.

The question was sometimes asked: "Are these object lessons, maps, charts and apparatus in general use in your Ontario schools?" Our reply was—the object lessons, maps, charts and globes are in pretty general use; but many of the more expensive kinds of apparatus, or more difficult instruments, are rarely used. Nevertheless, our object is to obtain samples and supplies of all kinds of articles which might be useful in our schools. As the teachers become better trained and the schools more efficient, they require, and should have, the very best kind of school material. We, therefore, keep in our Depository and Educational Museum the greatest variety of these useful and necessary articles. It is not the fault of the Department, but of the schools, that they are not so generally used as they ought to be. Nevertheless, it is the duty of the Department to provide these things, and to give every encouragement and facility for their use.

The Rev. Mr. Fussell, one of the British Jurors at the Vienna Exhibition of 1873, in his report "on Educational Appliances," speaks of "an educational exhibition as (for the most part at least) an exhibition of appliances and instruments, rather than of accomplished results." Such an exhibition, as every educationist must know, is by far the most instructive and valuable,—for it reveals the mechanism of the inner "life" of the system, and the contents, so to speak, of its "tool-house of practical education." It deals not with results, but with the means and processes of education. It illustrates not so much what you do, but how you do it.*

This was the main purpose and object of the Ontario Exhibit. In carrying out this idea, the Exhibit was so planned and furnished that a stranger, if he should be able to devote time to a careful study of the abundant information and material placed before him, would, without difficulty understand the whole structure and policy of our educational system,—its history, progress and development, and the means employed for making it effective for the purposes which it was designed to serve in its establishment. He would also see at Philadelphia what had been done and was doing in Ontario for the training of teachers; for securing a uniformity in methods of teaching and text books; for providing an ample supply at the cheapest rates of the best school material in the shape of maps, charts, models and apparatus; for improving the construction and condition of school buildings and premises; and for supplying the pupils at a nominal cost, (during the process of their education and at a critical period of their life,) after the taste of reading had been developed, with the greatest possible variety of the best and most wholesome literature which the press of England and America produces.

Thus, an intelligent enquirer at Philadelphia into our Ontario system could under-

* This view is shared in by M. Buisson, the French Education Commissioner at the Exhibitions of Vienna and Philadelphia. Speaking of the American Exhibit at Vienna, and what he believed to be its defect, he says:—"The American District School-house satisfied the visitor's curiosity. The building contained a hall and a large and well lighted School-room with forty seats. The interior arrangement of the building was far from making a favourable impression upon the visitor. I was surprised to find nothing that indicated this great nation's intimacy in the practical school life. Rich furniture was the only object of admiration. The maps and charts, of which several seemed to be in the collection entirely *by chance*, gave rather an idea of great variety of means of instruction than of regular methods in teaching, and of a premeditated pedagogical plan."

stand the whole philosophy of our educational plans; take in at a glance the outlines of the entire structure of our educational system, and with a little effort could understand its practical workings. Such, at least, was our aim, and such, I believe, it was felt that we were able to accomplish (among other things), by reason of the comparative completeness of our Educational Exhibit at the Centennial.

That such a purpose was fully appreciated by noted Educationists who visited the Exhibition, we have very gratifying evidence. The fact, also, that a Gold Medal was awarded to the Exhibit, and two additional awards of a most complimentary character were "decreed" by the Centennial Commission to the Department, upon the report of experienced Judges, is a matter of congratulation to the Department and to every one in the Province, who appreciates the efforts which have been put forth during the last twenty-five years by the Legislature and people to place Ontario as high on the list of educating countries as possible.

So uniform and consistent have been the testimony of strangers to the value of our Exhibit, that I cannot forbear quoting portions of that testimony in this report. But, before doing so, I desire to specify in detail the main features of that Exhibit, so that our people may the more fully appreciate the kind and friendly nature of the remarks which have been so spontaneously and heartily made in regard to it, and our educational system generally.

I may state that our whole Educational Exhibit was systematically grouped into twenty classes, which embraced the entire collection, the particulars of which were given in detail in a descriptive catalogue (compiled by Dr. May), which was distributed to visitors at Philadelphia.

The following brief statement of the principal articles exhibited—dividing them into classes—was prepared for me by Dr. May. He has appended notes where thought desirable.

CLASS I.

1.—*The Ontario School System, Historical and Statistical.*

This section related to the High and Public Schools under the control of the Education Department of Ontario.

It embraced Educational Reports of the Province from 1821 (in part) to 1875; School laws regulating High and Public Schools, and the Protestant and Roman Catholic Separate Schools in Ontario; General Regulations for the organization, government and discipline of High and Public Schools; Meteorological Reports and other important documents illustrative of our School System.

2.—*Reports from various Educational Institutions.*

This included University Reports, Calendars and Examination Papers, Reports from the Deaf and Dumb, and Blind Institutes, and Reports from the Inspectors of Asylums, Prisons, and Charities in Ontario.

These books were beautifully bound, and the back of each book was numbered in accordance with a catalogue specially prepared for the visitors at the Exhibition.

As may be supposed, this collection was of great value and interest to educationists from other countries, who were thus enabled to compare the growth and advancement of education in Ontario with their own.

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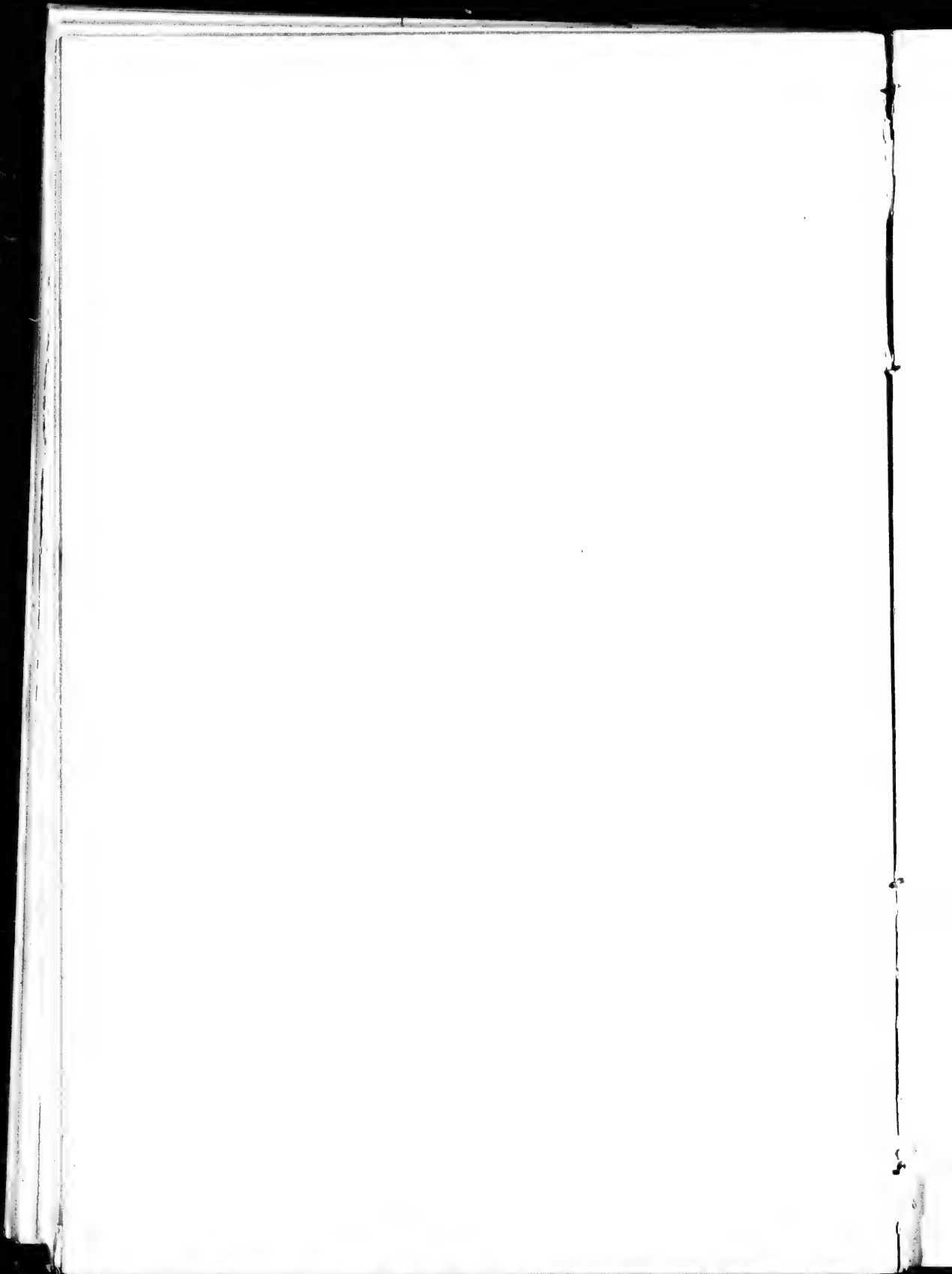
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No. 3. ONTARIO EDUCATIONAL EXHIBIT. — SOUTH-EAST VIEW. — CENTENNIAL INTERNATIONAL EXHIBITION. Page 16.



CLASS II.

Educational Institutions and other Public Buildings.

This class included photographs of Universities, Ladies' Colleges, Institutions for the Blind and Deaf and Dumb, Asylums, Reformatories, &c.

CLASS III.

Public and High School Buildings.

The Education Department, Normal and Model Schools, Collegiate Institutes, High Schools, Union, High and Public Schools, Public Schools, Models of School Buildings, School Plans, &c.

All the Schools &c., in this class, are exclusively under the control of the Education Department.

Classes II and III were chiefly represented by large photographs, seventy-nine in number, mounted in frames two feet six inches long, by two feet high. These Photographs were a great attraction to visitors. They were displayed on a rotary stand which could be easily turned. Visitors were in this way enabled to bring these photographs into different lights, and thus compare the architectural beauties of the Universities and Colleges with each other, and to see for themselves the class of buildings used for school purposes in our cities, towns, and rural districts.

From the congratulatory remarks made by thousands of strangers on the style and beauty of these buildings, we may judge that even this small portion of our Educational exhibition was the means of directing the attention of visitors to our excellent Educational Institutions, and giving them a better knowledge of the educational facilities of our country than they could otherwise have obtained.

The Japanese Minister of Education was so much pleased with these photographs, that he ordered several of them for the Education Department in Japan.

Dr. May adds: The models for school buildings were also a source of great interest and admiration. These models were constructed under the direction of Dr. Hodgins, from his own plans, as described in his new work on school architecture. They consisted of a Collegiate Institute of striking architectural design, made to a proper scale, so that it is quite easy for builders to estimate the cost of erection, &c.

A school-house as it should be, with exterior and interior views, was also exhibited. The exterior has two separate entrances for boys and girls, and is of very neat design. The interior is fitted up with all the modern appliances; desks with folding seats, teacher's desk, blackboards, &c. It has also galleries for primary classes, and two separate waiting-rooms for boys and girls, with lavatories, &c. It also shows closets for maps and books, ventilating shaft, &c.

We also exhibited a tasteful model of a Rural School-house erected near Lake Simcoe, from a plan (with modification by Dr. Hodgins) prepared by Jas. C. Morgan, Esq., M. A., Inspector of Public Schools, North Simcoe. Application was made for the purchase of these models by gentlemen representing different foreign governments, including the United States, Australia, Japan, &c.

Dr. Hodgins' models of School-house (exterior and interior) were sent to the Education Department, Japan. The Rural School-house was sent to the proposed Educational Museum at Washington, U. S.

CLASS IV.

School Fittings and Furniture.

Including School desks and seats, model of gymnasium, calisthenic apparatus, map stand, blackboards, &c.

Specimens of class IV. were sent to Japan and Australia, and were noticed by the International Judges for the excellence of their finish, durability and cheapness.

CLASS V.

Pupils' School Work.

This class represented the work of the pupils in the Public and Model Schools, from ten to fourteen years of age. It included map drawings, landscapes, animals, human figure, &c.

Also specimens of penmanship. In addition to these, specimens of drawing were exhibited from the School of Practical Science, Toronto.

This class attracted attention, perhaps, more from the novelty of the style of mounting, than from its superiority over other collections in the Exhibition.

The drawing books, maps, &c., were attached to large movable frames, so arranged that they could be easily examined, and although only occupying a few feet of space, contained over two hundred copy books, drawing books, maps, &c.

Sir Charles Reed was so much pleased with this exhibit that he made a drawing of it, in order to fit up similar collections in London.

CLASS VI.

School Method and Organization.

Entrance Examination Papers for Normal Schools, High Schools and Collegiate Institutes; Examination Papers for Provincial Certificates; School Registers, Time Tables, Honour Rolls, Weekly Reports, Merit Cards, &c., &c.

This class was of great interest to educationists, as the entire success and prosperity of the School must depend upon its proper organization, combined with a good method of imparting instruction.

The system of merit cards, devised by Dr. Hodgins, effectually does away with the pernicious system of personal rivalry among pupils. It is thus explained in the last report of the late Chief Superintendent of Education (Rev. Dr. Ryerson):

"The series of merit cards, with appropriate illustrations and mottoes, which has been prepared by the Department, is supplied to trustees and teachers at a very small charge, and these merit cards are to be awarded daily, or more generally weekly, to pupils meriting them. One class of cards is for *punctuality*; another for *good conduct*; a third for *diligence*; a fourth for *perfect recitations*. There are generally three or four prizes under each of these heads; and the pupil or pupils who get the largest number of merit cards under each head will, at the end of each quarter or half year, be entitled to the prize books awarded. Thus an influence is exerted upon every part of a pupil's conduct, and during every day of his school career. If he cannot learn as fast as another pupil, he can be as *punctual*, as *diligent*, and maintain as *good conduct*; and to acquire distinction, and an entertaining and beautiful book, for *punctuality*, *diligence*, *good conduct*, or *perfect recitations*, or exercises, must be a just ground of satisfaction, not only to the pupil, but to his or her parents and friends. There are two peculiarities of this system of merit cards worthy of special notice. The one is, that it does not rest upon the comparative success of single examinations at the end of the term, or half-year, or year, but on the daily conduct and diligence of each pupil during the whole period, and that irrespective of what may be done or not done by any other pupil. The ill-feeling by rivalry at a single examination is avoided, and each pupil is judged and rewarded according to his own merits, as exhibited in his every day school life. The second peculiarity is, that the standard of merit is founded on the *Holy Scriptures*, as the mottoes on each card are all taken from the sacred volume, and the illustrations on each card consist of a portrait of a character, or other pictorial illustration of the principle of the motto, and as worthy of imitation. The prize-book system, and especially in connection with that of *merit cards*, has a most salutary influence upon the school discipline, upon both teachers and pupils, besides diffusing a large amount of entertaining and useful reading."

CLASS VII.

Text Books.

Specimens of the text-books authorized for use in the Public Schools, viz.: English, arithmetic and mathematics, geography and history; physical science, drawing books, copy books, &c.

Also specimens of the text books sanctioned and authorized for Collegiate Institutes and High Schools, viz.: Latin, Greek, ancient history, classical geography and antiquities

French and German, English, arithmetic and mathematics, modern geography and history, physical science, and miscellaneous books.

This collection of one hundred and twenty-nine text books was easy for reference, being classified and numbered in accordance with the catalogue.

CLASS VIII.

Teachers' Professional Library Books.

Books on the science of education ; practical education ; theory and practice of education ; home and early education ; Kindergarten and object teaching ; the sciences ; teachers' aids in teaching ; physical education ; educational biography and sketches ; miscellaneous ; school house architecture, &c. ; self-education and personal help for young men ; aids to female teaching and education ; school life illustrated ; English language and philosophy ; and speaking and elocution.

The collection of books relating to the profession of teachers, embraced over three hundred and fifty volumes.

Nearly the whole of this collection was taken by the Japanese Vice-Minister of Education.

CLASS IX.

Library and Prize Books.

History, voyages, biography, literature, zoology, ethnology and physiology ; botany, agriculture, chemistry, geology, natural phenomena, physical science, natural philosophy, arts and manufactures ; practical life, religious and moral tales and essays, and fiction.

The total number of works in catalogue is over three thousand.

The prize-books were much admired for their excellence and beauty of binding, but the most commendatory remarks were made on the cheapness and the admirable system by which schools are provided from the Educational Depository with library and prize books ; and great was the astonishment when they were informed that through the liberality of the Ontario Legislature and Government, books were supplied for libraries and prizes at half the cost price, the actual cost to the school authorities purchasing from the Depository being at the rate of nine and a-half cents for books published at one shilling sterling.

CLASS X.

Reading Lessons, Mottoes and Writing.

Tablet reading lessons, illuminated texts and mottoes for hanging on the school walls, spelling games, writing, &c.

Many enquiries were made by private individuals respecting the price of the texts, mottoes, &c. Had it been a commercial enterprise, thousands might have been sold, independently of those which would have been disposed of to schools.

CLASS XI.

Arithmetic and Geometry.

Numeral frames, geometrical charts, geometrical forms and solids, conic sections, &c.

This important class received its share of attention, as it exhibited the facilities that youth now have of obtaining practical knowledge in the measurement of solids, &c.

CLASS XII.

Drawing.

Drawing books ; drawing materials ; models of fruit and leaves ; models of hands and feet ; plaster statuettes ; colour boxes ; mathematical instruments, &c.

The drawing models were much admired by strangers, and as drawing from objects is now one of the prescribed subjects of study for each class in our Public Schools, they are important adjuncts to teaching.

CLASS XIII.

Vocal Music.

Music charts for teaching singing.

These charts are on a large scale, illustrating Wilhelm's method, adopted by John Hullah.

CLASS XIV.

History and Chronology.

1. *Chronological Charts* of Bible history, and ancient history; and genealogical charts of the sovereigns of England, showing their respective titles to the crown.

2. *Historical Charts*.—The roll of Battle Abbey, A.D. 1066; Magna Charta; Regis Johannes, A.D. 1215, with the shields of the Barons, &c.; Magna Charta, with *fac similes* of the handwriting of the signers; Warrant to execute Mary Queen of Scots, A.D. 1587; and Warrant to execute King Charles the First, A.D. 1648.

3. *Men in Armour, Historical Photographs, the Great Seals, &c.*—Knight's armour, time of Henry the Eighth; suit of black armour, time of Edward the Sixth; photograph of the Albert Memorial in Hyde Park; photographs of the allegorical groups, representing Europe, Asia, Africa, and America; and photographs of the Relievs at base of the Memorial Monument.

In connection with the Historical Department, a collection of the Great Seals of England from the time of William the Conqueror to Her Majesty Queen Victoria, was exhibited. They were grouped as follows:—Early Norman Kings, Plantagenets Proper, House of Lancaster, House of York, Tudor Period, Stuart Period, and Guelph Period.

CLASS XV.

Geography and Astronomy.

1. *Topographical Illustrations*.—Terrestrial globes from three inches to thirty inches in diameter; blackboard globes; dissected globes, showing the natural history and physical features of countries; raised and physical globes, showing physical features, mountain ranges, &c.; maps of the World, Europe, Asia, Africa, America, British Isles, British North America, including Ontario, Quebec, Nova Scotia, New Brunswick, Vancouver's Island, Manitoba, &c.; United States; Palestine, including Bible land; Travels of the Patriarchs; Journey of the Israelites; Canaan, Palestine, Ancient Jerusalem, and Travels of the Apostle Paul; Raised Maps, showing the elevations of mountains, depressions for rivers, &c.; Europe, British Isles, France and Belgium, Italia Antiqua, Italy, Greece, Græcia Antiqua, Palestine, Jerusalem, and Model of Mont Blanc; Physical Diagrams; Maps of the World, showing physical features, movements of the waters, distribution of rain, distribution of climates, distribution of wind, &c.; Volcanic System of the Globe; Atlases, classical, general, elementary, physical, &c.; Geographical Sheets, Dissected Maps, Cubes, &c.

2. *Astronomical Illustrations*.—Celestial globes, various sizes; celestial spheres, Orreries, Planetariums, Heliotellus, Lunatellus, Turnbull's Helioconcentric Expositor of Terrestrial Motion; Astronomical Charts, Diagrams, &c.

Class XV. contained articles which attracted the attention of visitors probably more than any other class in our whole exhibit.

The Globes manufactured in Toronto were considered marvels of cheapness, the Maps constructed by Dr. Hodgins, and lithographed under the direction of the Department, were admired for their distinctness and excellence of finish, and were objects of great curiosity to foreigners, who had no idea that Canada manufactured such articles, and were still more surprised when they ascertained that for cheapness no other country can compete against us.

In this class also are Raised Maps showing the physical features of countries. The

large map of Europe exhibited was daily examined by crowds of people, many of whom had never previously seen or heard of Raised Maps, but all seemed of opinion that the true way of teaching geography is by the use of Raised Maps.

The full set of geographical maps, together with the Raised Maps manufactured in Toronto, were purchased by General Eaton, Commissioner of Education for the United States, for the contemplated educational museum at Washington.

Sets of these maps were also purchased by the Governments of New South Wales and Victoria.

CLASS XVI.

Natural History.

1. *Geology, Mineralogy and Crystallography.*—Geological Cabinets, Cabinets of Fossils, Rocks, Minerals and Metals, Models of Crystals, Geological Charts, &c.

2. *Botany.*—Models of Flowers on an enlarged scale, so constructed as to be taken apart to illustrate Physiological Botany; Botanical Charts; Botanical Plates, illustrating seeds, roots, plants, &c.; Botanical Plates for elementary instruction, including the plants of commerce, their preparation for food, medicine, &c.

Cabinet to illustrate the vegetable kingdom, with two hundred specimens of articles used for Food, Medicine and Clothing, and in the Arts and Manufactures; Apparatus for collecting Plants, &c.

3. *Zoology.*—Zoological specimens; stuffed specimens, illustrating the following classes:—

Class I.—Fishes: orders, Teleostei and Ganoidi.

Class II.—Amphibia: order, Anoura.

Class III.—Reptiles: orders, Chelonia, and Ophidia.

Class IV.—Birds: orders, Natatores, Grallatores, Rasores, Scansores, Insessores and Raptores.

Class V.—Mammalia: orders, Carnivora, Rodentia, Cheiroptera, Insectivora and Quadrumana.

Silk Worms, showing specimens of Metamorphosis, Silk, Mulberry Leaves, &c.; Zoological Diagrams of Mammalia, Birds, Reptiles and Fishes; Natural History Object Lessons with Reading; Zones of the earth showing the inhabitants of its various zones; Kindergarten Natural History, Object Lessons, &c.

4. *Ethnography.*—Busts, life size of Her Majesty Queen Victoria; Prince Albert; Prince of Wales; Princess of Wales; Shakespeare; Sir Isaac Newton; Herschel and Faraday. Busts reduced in size, Greek Philosophers and Orators; Roman Orators; French Philosophers, Statesmen, Painters, &c.; Italian Poets; English Poets; German Scientists, &c.

5. *Anatomy and Physiology.*—Anatomical Models showing the Viscera in position, ditto with organs of circulation and respiration; Model of Jaw showing teeth in the various stages of growth, nerves, arteries, &c.; Model of Skin showing the epidermis, perspiratory glands, hair follicles, arteries, nerves, &c.; Anatomical and Physiological Diagrams, some of them 3 feet 8 inches wide and 9 feet long, each on a single sheet of paper, steel plates and paper had to be expressly made for these charts, and a leviathan press designed and perfected to permit so large a sheet to be printed in colours.

It was generally conceded that our collection included in the group Natural History, the most complete ever exhibited for the purposes of teaching, and as it is the opinion of all prominent educationists that Object Teaching develops and stimulates a spirit of enquiry, and is the most effectual method of imparting instruction, we may justly feel proud of our excellence in this department.

The specimens of Natural History prepared by myself were awarded a Special International Medal as a collection for teaching purposes. The Commissioners representing the Imperial Museum at Japan made arrangements to obtain duplicate specimens of these for their Museum.

The Botanical Models too, were much admired; they are far superior to plates for the purpose of teaching.

Sets of these were ordered for the Education Department and Imperial Museum at Japan, and the Educational Museum at Washington.

The Botanical Charts and Botanical Cabinets prepared under the direction of this De-

partment were considered of so much importance, that duplicate copies were purchased for Australia, Japan, and the United States.

Duplicate copies of the whole collection of Natural History Charts and Diagrams that we exhibited, including Zoology, Botany, Object Lessons, &c., were ordered from the Department for the Imperial Museum at Japan, the Japanese Education Department, and the Educational Museum at Washington.

This certainly is a great compliment to the Education Department of Ontario, when triplicates of every article in a certain group that has been exhibited are ordered by persons so well qualified to judge of their value for the purpose designed.

The Anatomical Models manufactured in Toronto were considered so much superior to others in the Exhibition, that an International Medal was awarded them. Sets of these were also purchased for Japan, Australia, United States, &c.

CLASS XVII.

Chemistry.

1.—*Apparatus for teaching the Elements of Chemistry.*

1. *Chemical Laboratories.*—Boy's own Laboratory, Student's Laboratory, Normal School Student's Laboratory, Teacher's Laboratory, &c.

2. *Apparatus for Experiments with Gases.*—Gasometers, Retorts, Gas Bottles, Woulff's Bottles, Eudiometers, Eprouvettes, &c., &c.

3. *Chemical Thermometers* made without fittings of wood or metal, so that they can be immersed in hot, caustic, or acid liquors without danger of breaking.

4. *Chemical Apparatus for applying Heat.*—Glass Spirit Lamps, Russian Spirit Lamp, Blowpipe Apparatus, Blowpipes, &c.

5. *Apparatus for Weighing.*—Chemical balance to show $\frac{1}{360}$ grain; common Chemical Balances, &c.

6. *Various Chemical Apparatus.*—Alkalimeters, Test Mixers, Syphons, Pipettes, Evaporating Dishes, Funnels, Percolators, Cork Borers, &c.

7. *Chemical Diagrams.*—Charts, illustrating Organogens or Generators of Organization, Salogens or Salt Formers, Pyrogens, or Fire Producers, and Hyalogens or Glass Formers; Chemistry of Geology; Chemistry of Light and Combustion; Chemistry of Animal and Vegetable Life; Chemical Physics, &c.

The Chemical Laboratories in this Class, which are manufactured only in Toronto, were awarded an International Medal for their cheapness and excellence.

Sets of these were ordered for several foreign countries, and they are now about being introduced into the Schools of the United States. The whole department of Chemistry was interesting to manufacturers as well as teachers.

Chemistry has made such rapid strides within the past half century, that all trades are now partially dependent upon this science, hence its importance as a branch of study.

CLASS XIX.

Pneumatics.

1. *Apparatus for Exhausting and Condensing.*—Air Pumps, Magdeburgh Hemispheres, Guinea and Feather Apparatus, Hero's Fountain, Transfer Jars, Glass Receivers, &c., Models of Pumps, &c.

2.—*Meteorological Instruments.*—Standard Barometers, Metallic Barometers, Aneroid Barometers, Self-registering, Maximum and Minimum Thermometers, Hygrometers, Rain Gauge, Meteorological Abstracts, &c.

Charts and Diagrams.—Principles of Pneumatics, the Barometer, its construction and uses, &c.

The articles in this class were admired by almost every person that examined our exhibit; the construction of instruments applicable to every-day life were explained, and

the low price at which the apparatus is sold to Canadian Schools was another important feature in which the visitors took interest.

In point of finish, the instruments in this class manufactured, under the direction of the Education Department, are quite equal to those of any other country that exhibited, yet they are sold at less than half the price quoted by foreign exhibitors. Some of this apparatus was sent to the Educational Museum at Washington.

CLASS XX.

Acoustics.

Apparatus for illustrating sounds with air pumps, &c.

CLASS XXI.

Light—Optics.

Microscopes, magic lanterns, kaleidoscopes, chiaromorphoscopes, spectroscopes, models of the eye, electric lamps, magnesium lamps, polarizing apparatus, &c., &c.

In these classes our exhibit was well represented; in fact all our philosophical apparatus was highly finished, and had the latest improvements, therefore, elicited praise from those who understood its uses.

CLASS XXII.

Heat and Steam.

Models of locomotive, steam engine, beam engine, horizontal oscillating engine, vertical, stationary, oscillating engine; pyrometers, Tyndall's apparatus to exhibit unequal expansion; reflectors, diagrams of steam engines, &c.

CLASS XXIII.

Electricity.

1. *Fractional Electricity.*—Carr's electrical machine, Van Norman's electrical machine, Winter's plate electrical machine, Plate electrical machine, Bertsch's electrical machine, Ramsden's electrical machine, Cylindrical machine, Electrophorus, Leyden jars, Electric batteries, Dischargers, Electroscopes, Contomb's torsion balance spiral tubes, Electrometers, and a great variety of other electrical apparatus.

2. *Voltaic Electricity, Magnetism, Electric Magnetism, &c.*—Grove's battery, Bunson's battery, carbon battery, Smee's battery, Daniell's battery, Le Clanche's battery, decomposition water apparatus, models of telegraph instruments, electro magnetic machines, electrotyping apparatus, vacuum tubes, galvanometers, magnets, charts, illustrations, &c.

This class formed the most beautiful portion of our philosophical instruments' exhibit, and several were purchased for Washington.

CLASS XXIV.

Mechanics and Mechanism.

Mechanical powers, models of locks, screws, centrifugal machines, charts and illustrations, &c. A part of this exhibit was sent to Japan, duplicates being also ordered for Washington.

CLASS XXV.

Hydrostatics and Hydraulics.

Equilibrium tubes, hydrostatic bellows, pump, &c., Archimedes pump, under and over-shot wheels, charts, illustrations, &c.

CLASS XXVI.

Kindergarten Illustrations.

Miniature printing press, tools of various trades, working model of coal mine, lead pencil manufactory, &c., &c., building models, Kindergarten toys, &c., Kindergarten illustrations were included in the 26th or last of these classes, and also attracted much interest. Kindergarten instruction was first introduced into Germany by Froebel, of Hamburg, who devoted his life to improving methods of elementary instruction, his great principle was to combine amusement with instruction. This branch of education is now receiving great attention in the United States, schools for instructing very young children by this method are being formed.

From conversation with the leading educationists, however, I do not think it will ever become popular on this continent.

They all agree that the mind should be educated through the eye, but they prefer for that purpose object lesson teaching, as recommended by our Department.

In connection with our collection was a very fine exhibit from the Institute for the Blind at Brantford. It consisted of books of instruction, apparatus, maps, &c. for teaching the blind, part of which was constructed by the Principal of that Institution, Mr. Hunter, and fancy work, willow work, &c., by the blind pupils. This exhibit was not only admired for the neatness and excellence of its work, but naturally created a sympathy for those of our fellow creatures who are deprived of sight.

This exhibit was far more deserving than many others that were awarded International Medals, but it had not yet been recognised by the Judges, although Dr. Hodgins and I have repeatedly called at the Award Department, and represented the matter to the officials. I may remark that the Ontario Educational Exhibit was awarded the Gold Medal by the English Judges for the Canadian Department, and International Medal and Diploma by the Centennial Commissioners, and a complimentary award by special Judges for the completeness of our display as a collective Government exhibit. Dr. May adds: It is also very gratifying to state that the Company which have purchased the Main Building at Philadelphia for the purposes of a permanent exhibition, have decided to devote a very large space to Education on a similar plan to that of the Ontario Educational Museum. The Minister of Education has presented to the Company the fittings of our Educational exhibit. In addition, the Company intend having Model rooms fitted up with the necessary apparatus, &c., for the different grades of schools.

At a meeting of educationists, held in Philadelphia a few weeks ago, convened by the Chairman of the Permanent Building Company to meet the members of that body, it was decided that this portion of the Exhibition should be under the control of an Educational Committee, consisting of the Hon. Mr. Wickersham, Superintendent of Education for the State of Pennsylvania; Professor Apgar, Superintendent of Education for the State of New Jersey, and myself, as representing the Education Department of Ontario.

As I am the only foreigner chosen to act on this Committee, it evinces an appreciation of our Museum and Depository system, and I may say further that the two gentlemen appointed as my colleagues are strong advocates of the establishment of similar institutions in the United States.

(End of Dr. May's Summary.)

PART VI.

OPINIONS OF THE PRESS AND OF STRANGERS AS TO THE VALUE OF THE ONTARIO EXHIBIT.

Thus far I have confined myself to an expression of my own opinion as to the value of our educational exhibit. I shall now quote the opinions of two gentlemen, as well as the following "Opinions of the Press" as to the character and excellence of that collection. The latter I shall classify under two heads—American and Canadian.

The first opinion which I shall quote is that of Augustus Morris, Esq., the able Executive Commissioner from New South Wales to the American International Exhibition. Mr. Morris felt very anxious to obtain specimens from our exhibit for an exhibition to be held at Sydney this year. He, therefore, at my suggestion, addressed a note to the Minister of Education for the Province on the subject. The Minister felt, however, that he had no authority to send any part of the exhibit to Australia. When in Philadelphia in October, Mr. Morris again saw me on the subject. As my answer was still unfavourable, he again addressed the following letter to Minister on the subject :—

"I am sorry to learn from Dr. Hodgins that you did not think it was within your discretion to send to the exhibition in Sydney a portion of your admirable exhibit at the Centennial. I am sure there is nothing which so fully shows the extraordinary progress of Canada as the educational display of Ontario. When I was seeking for information on educational matters, one of the Professors of the University of Pennsylvania recommended me to visit Ontario, as I would there learn more on those subjects than in any other country. He pointed to your exhibit as a proof, and said he felt ashamed that the United States was so far behind Ontario.

"Nothing would teach the Australians more, or give them so high an opinion of Canada, as the study of your educational system. I am certain everything you sent would be purchased by the Council of Education of New South Wales. It would not be necessary to send any one to explain the objects, as I would make myself master of the details. * * * Kindly reconsider the matter, and try what you can do. Professors Baird and Silliman remarked to-day, that Canada's progress in educational matters had greatly astonished every one, and the United States, instead of looking across the ocean for help, should get it from her immediate neighbour.

"I hope my admiration for your system of education is not making me overlook any constitutional question when I urge you to favour Australia so much."*

The second opinion is that of M. Buisson, chairman of the committee of French gentlemen representing the Minister of Public Instruction at the International Exhibition.

In one of a series of articles on the educational features of the Exhibition, published in the French *Journal des Instituteurs*, and republished in the *Pennsylvania School Journal*, M. Buisson says :—

"Of all foreign countries those which attract the most attention, because they make exhibit of new material, are Russia, Japan, and the British Colonies—Canada at the head * * * I desire to speak of the exhibition made by Canada. * * * Besides, Canada occupies in the Educational Department of the Exhibition a place too important not to be studied by itself. Its affinities and its differences with the United States of America are such, that we can comprehend more quickly and better its exhibition, when we are familiar with that of the United States. Commencing then our voyage of explanation with the latter country, we will end it by visiting our compatriots on the borders of the St. Lawrence."

In a subsequent number of the *Journal des Instituteurs*, M. Buisson continues his remarks, under the head of THE CANADIAN EXHIBITION. For a translation of these remarks in advance of publication in the *Pennsylvania School Journal*, I am indebted to the kind courtesy of Hon. J. P. Wickersham, its Editor. M. Buisson says :—

"To make a brilliant educational exhibition by the side of that of the United States was not an easy thing to do, and for Canada to have succeeded in doing it goes to prove that her schools are in a very prosperous condition. That such is their condition, in fact, seems clear from all kinds of documents and photographic specimens, and specimens of maps in relief which were brought together at the Exposition.

* As specimens from our collection could not be sent on exhibition to Sydney, the Commissioner purchased a large quantity on behalf of his government, for the purposes indicated.

At one thing we must, nevertheless, express our extreme regret : it is that Lower Canada, the Province of Quebec—that is to say, all French Canada—failed to take little, if any, part in the educational exhibition. This regret is deepened by the fact that the occasion was a fine one in which to contrast French methods with those of England and the United States. The Province of Quebec, where the French still remains the dominant language—where the recollections of the mother country are not yet effaced—where French customs and traditions still largely prevail,—the Province of Quebec should have considered it a point of honour, it seems to us, to dispute with the English Province of Ontario in the humble department of education, that pre-eminence which the latter did not hesitate to dispute with the United States. French Canada has preserved as a teaching force (almost to the exclusion of all others), the different religious orders of both sexes. There are flourishing schools directed by the Christian Brothers, the Sisters of Notre-Dame, the Sisters of Piety, and several other bodies of this character, some of which are more flourishing than in France. The methods of teaching that were originally brought from France are still preserved. Did not a Canadian Judge lately say on an important occasion, "Canada is France, but France before 1789?" We should have been deeply interested in comparing this France beyond the sea, and of another century with its Republican neighbours and its English brothers. It is greatly to be regretted that this pleasure has been denied us, and we may be permitted to say without prejudice that the neglect to take part in so important an occasion is not exactly a good sign. Ontario, or English Canada, resembles more in its methods of teaching, the United States than England. Its system of primary education is organized on a plan wholly American. One of the most notable differences which we notice is in favor of Canada : this is, the good understanding between the Protestant majority and the Catholic minority. The latter acquiesce as in the United States, in the necessity of paying a tax for educational purposes, but the proceeds of this levy on the supporters of Catholic Schools are placed without abatement in the hands of Catholic trustees who appropriate the money thus received to the maintenance of Catholic Separate Schools, popularly and pedagogically analogous to those supported by the Protestants, but independent and no wise constrained in any thing that relates to religion in forms of worship. This liberal policy makes recrimination and conflict impossible.

"There exists at Toronto, the Capital of Upper Canada, an establishment, the like of which we would be glad to see at Paris, it is a pedagogical museum, embracing school furniture and apparatus, maps, charts, books, and documents relating to teaching and schools, objects of art and industry ; in short, all that can serve the practical purposes of education. Adjoining the same building is the Normal School, with its several connected departments of model schools, which are themselves beautiful schools. The main building contains an educational storehouse and depository, like those of the City of Paris, and bureaus for the administration of the affairs and laws of education. The building possesses a fine theatre, vestibule and halls, in which are placed the busts of the great men of all nations. We were curious to find out what Frenchmen the Canadians had selected to present to the people and the young in this head-quarters of teaching, universal history by statues. Must I tell you what you will find there? Yes, for it will aid you perhaps in understanding certain ideas which prevail respecting our country among strangers. They have given us the place of honour in the centre of the gallery, and there we are represented by four busts : Henry IV., Voltaire, Robespierre, and Napoleon III. And behold how these young English-Canadians learn our history.*

"One of the most curious of the documents contained in the Ontario Exhibition, was the

* M. Buisson's glance at the French busts in the Ontario Educational Museum, was a mere cursory one. He overlooked the following, which formed part of the collection to which he refers : Henri I., Henri II., Henri III., Sully, Richlieu, Buffon, Cuvier, Napoleon I., Lacondaire, and Eugene.

In addition, we had the following from our collection on exhibition at Philadelphia, arranged and catalogued under the head of historical "Ethnography:" L'Hopital, Diderot, Rousseau, D'Alembert, Descartes, Montaigne, Molière, Bossuet, Boileau, Racine, Chateaubriand, Dupin, Beaumarchais, Sainte Pierre, Delille, Lavoisier, Jacquard, Nodier, Lallemand, De Balzac, Paré, Malherbe, Etienne, Lebrun, Greuze, Malesherbes, L'Abbé de L'Epee, and Lamartine.

Further, we had in the same Museum which M. Buisson visited, a very extensive collection of casts of medals of all the French kings and most of the distinguished men of France, besides small busts of Sully, Beranger, Beaubarnaïs, D'Aguesseon, Fontenelle, La Fontaine, La Bruyere, Rabelais, Corneille, Mesdames de Staël, de Pompadour, Roland, G. Sand, as well as statuettes of Claude, Peussin, and J. Paul, and a statue of Jean of Arc.

collection of subjects or questions for the examination of teachers. There were three classes of certificates; and, as in the United States, the certificates of the third grade have only a temporary value, and must, under the penalty of being annulled altogether, be renewed every third year, or be replaced by a permanent certificate of a higher grade. The examinations are quite difficult, even in the lower grades. They always include the subject of pedagogy, exercises in the theoretical and practical management of a school, ten written questions on grammar and etymology, a composition, arithmetic, and ten questions in history and geography. The second grade embraces, in addition to the above, an extended written examination in geography and in applied arithmetic, ten questions on chemistry, botany, and physiology, and an examination in drawing and vocal music. As to the certificate, a diploma of the highest grade, it alone, properly speaking, has a well defined value, and seems to embrace several branches in addition to those required by our full certificate, especially in the direction of technical knowledge. Generally, however, the teachers who desire to obtain a certificate of the highest grade, prepare themselves by a full university course of instruction. This is often done by young men who propose to teach during a few years to obtain means to continue their studies for the purpose of becoming ministers, lawyers or doctors.

"We must stop at this point, incomplete as it is, this review of the Exposition which is about to close. What we have written will not be entirely useless if it shall inspire in one or another of our readers the desire to make a fuller acquaintance with the educators and educational affairs of the New World: let us hope all such may be able to do it in eighteen months without having to cross the ocean for the purpose."

1. OPINIONS OF THE AMERICAN PRESS AND EDUCATIONISTS.

1. CANADA AT THE PHILADELPHIA EXHIBITION.

(From the Annual Report of the Hon. Ellis A. Apgar, State Superintendent of Public Instruction, New Jersey.)

In speaking of the meagreness of the exhibit from England, Mr. Apgar, says:

"Canada comes next. While we are surprised that England did so little, we are astonished that our northern neighbour, one of her provinces, did so much. Ontario presented the finest collection of expensive school and college apparatus exhibited. Without enumerating the articles, which would be tedious, I may simply state that it is doubtful if one could find anywhere on sale a piece of school apparatus for any grade of school from the kindergarten to the college, that was not in the Ontario exhibit. It should be understood, however, that this collection came from the educational depository established by the government at Toronto. From it all educational institutions are furnished with books and apparatus at a reduction of one-third the retail price, and in addition to this, the government appropriates towards the purchase an amount equal to the amount raised by the local authorities. Books and apparatus to any amount, therefore, may be had by any institution for one-third the retail price. This province also exhibited a limited amount of school work, including some excellent free-hand drawing, map drawing and penmanship. She also showed us about fifty photographs of their finest graded and high school buildings. They are all good substantial structures.

In speaking of the lessons to be derived from the foreign educational displays at the Centennial Exhibition, by the Americans, Mr. Apgar says:

(1.) "In the first place we find that the school officers are clothed with more authority than those in our country, in determining the plans and arrangement of school buildings. I think it would be well if our law provided that all plans of school-houses should receive the approval of some competent judge.

(2.) "Secondly, we find that the schools in most of the foreign countries are altogether better supplied with apparatus than ours. We are far behind in this respect. The teacher there can scarcely wish for a contrivance to illustrate any subject he is called upon to

teach, that is not furnished him. The best displays of apparatus for high schools and colleges, as already mentioned, were made by Ontario and Russia. The exhibits being made by their depositories, do not enable us to judge how much is found in their schools. Belgium and Sweden showed us what tools they actually give their teachers to work with, and if we could have all our schools equally well equipped, the results we would secure in our school work in the right development of mind, would be greatly increased."

2. EDUCATIONAL EXHIBIT OF THE PROVINCE OF ONTARIO AT THE CENTENNIAL.

(From the "*Pennsylvanica School Journal*," Edited by the Hon. J. P. Wickersham, State Superintendent of Public Instruction.)

England has contributed very little to the Educational Department of the International Exposition. In other departments she occupies the leading place, both in the extent and quality of her exhibits, but in the matter of education she makes no attempt to show the world what she is doing. This neglect, however, is somewhat compensated for by the fine display made by her vigorous daughter, the Province of Ontario, Canada. This Province has for some thirty or forty years been making efforts to build up an efficient system of public education. At the head of the Department of Education for nearly the whole of that time, has stood the Rev. Dr. Ryerson, well known in the United States, and distinguished alike as a scholar, a gentleman, and an enthusiastic worker in the cause of education. As a result of his wise administration, with the co-operation of the most intelligent citizens, Ontario has made such progress in her school affairs as to warrant her appearance at our Centennial Exposition to compete in respect to them with us and with the world.

The Ontario exhibit contains several rotary stands, to which are hung a considerable number of photographs and drawings of school-houses. There are in it several specimens of school desks and seats. These we do not like nearly so well as the best ones made in this country. In scholars' work the exhibit is very poor, there being only a few specimens of drawing, map drawing, and writing. This is a great defect. But that in which the Ontario exhibit equals, if it does not excel, all others on the ground, is its fine display of school apparatus and appliances.

The Ontario Educational Department is well arranged. There is for a background a wall built like an archway, 100 feet long and 30 feet high covered with maps, relief maps, drawings, charts, illustrations in natural science, engravings, etc. Immediately in front of this wall stand eleven large glass cases filled with the exhibited articles. The general character of these articles is presented in the following extract which we take from a recent issue of a Philadelphia newspaper:

"Two cases are devoted to the display of articles used in object teaching, one of which is employed in the higher grades of schools, and including a collection of Mammalia, birds, reptiles and fishes, all Canadian and American in character. For ethnological instruction there are busts of celebrated men, representing every country, which are constantly before the pupils while they are studying, and help to serve to make firm impressions upon the memories. For botanical tuition, models of flowers and plants are used in connection with Gray's Book of Botany. For teaching Zoology, Mineralogy and Conchology, small cabinets are used, showing specimens of the principal minerals and shells and their applications to the arts and sciences. In the schools where natural history is taught, cabinets containing two hundred specimens of useful substances of food, medicine, and clothing are employed, and for the chemical department another cabinet is used, provided with apparatus for performing two hundred experiments. As an indication of their cheapness, it may be said that the former are disposed of to the schools for \$5, while they would cost £5 in England; and the latter for the same price, while they would bring \$40 at retail here. The Kindergarten system is illustrated by diminutive models of bridges, railroads and mining operations, which are beautiful in themselves, and must be highly attractive to the youthful eye. Electricity, magnetism, galvanism and light, are created by instruments displayed in another case, and adjacent to it is one containing pneumatic apparatus, embracing an air pump in which the cylinders are con-

structed of glass, the movement of the piston thereby being visible, also objects to show the employment of heat and steam, the appliances of mechanics, hydrostatics and hydraulics. In the teaching of geography and astronomy, globes and atlases are freely employed, and a full line of these are displayed, as is also a new instrument devoted to instruction in the latter branch of science, entitled the Heliocentric Expositor of Terrestrial Motion, which is esteemed an admirable addition to the improvements being made with such rapidity in Educational pursuits."

The prominence given to the preparation of school apparatus and appliances in Ontario is owing to the existence of what is called an *Educational Depository* established by the Government at Toronto. From it all the schools of the Province are supplied at half-price, or less, with school books and all articles of school furniture and apparatus. The intelligent officers in charge of the Depository have, in the course of years, collected and had manufactured, a large supply of the kinds of articles that have been forwarded to the Exposition. This Depository and its working we desire by and by to make the subject of a special editorial in the *Journal*.

That the Canadians are quite well aware of their success at the Exposition will appear from the following paragraph cut from the *Toronto Globe*: "Meritorious as the Pennsylvania display is, it falls far short of our own in some respects, while in general effect it has only the advantages derivable from greater extent and a better opportunity for arranging articles in an artistic fashion. The exhibition of apparatus of every kind from Ontario is far ahead of any exhibit from any other country, and will almost equal the whole of them put together. Of specimens of pupils' work, on the other hand, we make comparatively a poor show, exhibiting institutions being comparatively few."

3. CANADA AT THE EXHIBITION (EDUCATION).

(From the *New York Tribune*.—*Extra No. 35.*)

Great Britain has made no representation of her educational system; at least I can find none. The colonies, however, compel attention to their work for their children. Our neighbours of Ontario, by the care and labour which they have given to this Department, show how much more important they hold the manufacture of wives and women than of fabrics or pottery. Education in that Province is compulsory, the parents of every child between the ages of seven and twelve, who is not at school, being subject to a fine of \$1 per month, or imprisonment if the fine is not paid. Catholic ratepayers can elect to send their children to the separate instead of public schools; he is taxed for their support, and is exempted from public school rates. Then sectarian schools receive their share of the Legislative Grant, and are under the control of the Educational Department. The prescribed course of study in the public schools differs but slightly from our own, the studies ranging from reading and spelling up to civil government, physiology, and the higher mathematics. The High Schools furnish a higher English course, with the classics and modern English languages. There are Normal Schools for the training of teachers, and, outside of the jurisdiction of the Educational Bureau, Colleges, founded upon the model of the great Public Schools of England, and Universities. Both Colleges and Universities have been endowed with large grants of public lands, the annual income amounting to from \$12,000 to \$55,000. Institutions for the blind, the deaf and dumb, mechanics' and agricultural schools, are all aided or supported by the liberal Provincial Government. There are in the main building several models, ingeniously built, of the principal colleges and schools. There is also a more complete display of the apparatus of teaching than is to be found elsewhere, from Froebel's balls and primers for the babies to costly scientific instruments, coloured casts and manikins for advanced classes in physiology, dissected steam engines, and raised maps for the use of the blind. Dr. May, of the Educational Department of Toronto, is in charge of this detailed and remarkable display, which assumes pertinency and meaning in the light of his statement, that every article was furnished by the Provincial Government at half price to the schools, of which price a moiety is paid by the Department; thus, for an American book costing here \$1, the scholar in Toronto pays only about 35 cents.

4. ONTARIO (CANADA) AT THE CENTENNIAL.

(From the *New York School Journal and Educational News*.)

"Our northern neighbours make up for the negligence of the mother country by sending a magnificent exhibit of their school system. It includes models of school buildings from country and city, the former of which may be studied with profit; photographs of the Educational Department at Toronto, the Normal School at Ottawa, and other elegant school buildings, and full cases of apparatus, from the counting frames of the Primary Department to the elegant philosophical apparatus of the High Schools and Colleges. There is a fuller exhibit of apparatus here than in any other department. On large frames suspended by side hinges, is shown the work of the scholars, including first-rate map drawing and penmanship, and superb free-hand and mechanical drawing from the evening classes of the School of Practical Science at Toronto. The samples of school furniture are noticeable, also the elegant Relief Maps, and Oliver and Boyd's Object Lesson Cards."

5. CANADIAN EDUCATION.—AN EXAMPLE FOR THE UNITED STATES.

(From the *Philadelphia Press*, 29th June, 1876.)

In the Main Building, Canadian Department, there is an exhibit which every American will admire, and which cannot fail to interest foreigners. We refer to the educational exhibit from Ontario. This exhibit is a practical illustration of the method so successfully adopted across the border for the instruction of youth, and which has so interested the educationalists visiting our great Exposition. A fact probably not generally known is, that the Dominion of Canada now contains seven different provinces, stretching continuously in one unbroken country like our own, from the Atlantic to the Pacific. Ontario, the most important Province, and the one best known to Americans was recently called Canada West, it, like each of the other Provinces of the Dominion, having a separate Legislature and Lieutenant-Governor. The Educational Department, long well-known under the superintendence of the Rev. Dr. Ryerson, is now presided over by a member of the Executive Council, who is directly responsible to the Government. The Minister of Education is the Hon. Adam Crooks, the former Deputy-Superintendent, Dr. Hodgins, being Deputy Minister of Education, while all the former officers of the Department retain their places under the new administration. That it is and has been well managed, and that the school system of Ontario, is of great and direct benefit to the people, is easy to see by a glance at the exhibit. A part of the system is a Depository in connection with the Education Department, established about twenty-five years ago. Its function is to supply the five thousand Public Schools, and the High Schools of Ontario with books and all the necessary educational appliances at half the usual price, so that an article sold in England for five shillings sterling, costs the school only 15 cents. Thus, it is by wise legislation, the Canadian authorities have materially assisted in fostering education at home by the establishment of libraries, supplying school-prizes and furnishing school-houses, and have set an example to the whole world. The exhibit is at present under the superintendence of Dr. S. P. May, of the Education Department of Toronto. The Doctor is a gentleman of large resources, full of suggestions, and his pet subject is education of the young. With his good-natured and easy manners, he is always ready to impart to all who are interested in the subject his ample knowledge, which always proves a mine of wealth to the listener. He is equally capable of expounding the Ontario School System, which he represents, or to give a vivid running commentary on the articles exhibited or represented, whether it be kindergarten, natural history, geography, or the various branches of physics. He not only explains, but interests and instructs, and the throng that daily gather around him during his short, descriptive lectures, is a proof of his popularity.

So much has been said about the articles exhibited in the Ontario Educational Court, and the taste displayed in their arrangement, that it leaves little for us now to describe. The visitor's attention is first attracted by a long ornamental wall covered with maps and charts of the most elaborate finish. This wall, which was erected by special permission from the Centennial authorities, is 110 feet long and 30 feet high. The maps and charts displayed on it are manufactured in Toronto under the superintendence of the Department. For clearness, distinctness, and beauty of finish they are superb. They cost the schools only \$1.50 each.

The charts and diagrams representing botany, zoology, and the various branches of physics, &c., are most elaborate, and yet bought at such low prices under this admirable system, that every school can afford to purchase them. It behooves our people to awake to the consciousness of what our friends across the border are doing in educating the masses. We observed a really good, useful globe which only costs 75 cents, as well as all sizes up to the largest to be found in the Exhibition, all of which are made in Toronto, as also a large binocular microscope which cannot be distinguished in beauty and finish and excellence from the more costly ones purchased in London; good electrical machines which in the hands of Dr. May, gave a spark several inches long, are furnished the schools for \$6.

The school apparatus illustrating pneumatics, hydrostatics, hydraulics and electricity, &c., is not surpassed in the Exhibition, and there is no doubt that the Ontario Educational Court has awakened many to the importance of the Canadian way of management. Hitherto little has been known of the work done in this direction, and now to our surprise, we find this colony successfully competing against the whole world. The Government of Ontario certainly acted a wise part in bringing their educational system so prominently before the Centennial visitors. The residents have positive proof that their children can receive proper education, and among the many thousand visitors to the Exhibition some are sure to avail themselves of the instruction afforded by this Department. Another handsome feature is well executed photographs and models of school buildings, together with a number of historical charts, and busts of celebrated men. There are also displayed photographs and engravings of historical events and the different epochs of importance in Old World history—copies of the seals of the Norman Kings, the Plantagenets proper, the houses of Lancaster and York; the Tudor, Stuart and Guelph periods, embracing a full collection from the time of William the Conqueror to the reign of Queen Victoria; also, a large glass case fitted up to illustrate object teaching. The importance of teaching the various branches of natural history is realized only by examining these beautiful specimens. But if the visitor can get Dr. May for a few minutes to give a description of the manner in which these subjects are taught, they will go away impressed with a greater love for Nature, and in the words of the Doctor, a greater desire that their children may be taught the beautiful in nature, and thus be led imperceptibly but surely "from Nature up to Nature's God."

6. THE PLANS PURSUED IN CANADA.—FINE EDUCATIONAL EXHIBIT BY THE PROVINCE OF ONTARIO.

(From the Philadelphia Herald.)

On the northern side of the Main Building there is an exhibit which is well deserving of the closest scrutiny, and the careful thought of every public-spirited citizen and visitor. It embodies the workings of the Education Department of Ontario, and shows in a thorough manner the admirable system of training the young idea in vogue "across the border." It may not be generally understood that Canada is composed of several distinct Provinces, one Quebec, another Ontario, the latter being formerly known as Upper Canada or Canada West. It has an Education Department similar in its functions to the Department of Public Instruction in France, England, and other countries, which being a branch of the Government, pays the fullest attention to the tuition of the young. Being identified, therefore, with the best interests of the community, this section of official work receives excellent handling, and as a result its schools are equal to, if they do not exceed in quality, those of any on the continent. Philadelphia has splendid school-houses, but the methods of instruction practised in them are not, it must be confessed, comparable to those adopted by the Canadian authorities. The exhibit made of this subject is arranged with commendable taste, and the effective manner with which it has been prepared is due to the exertions of Dr. S. P. May, of the Education Department of Toronto. Eleven large glass cases are situated in the hall, and space is provided for special features upon a wall 30 feet high and 110 feet long. The Educational Court is represented by specimens of philosophical instruments, maps, charts, diagrams, text books, which are kept in the department for the purpose of supplying the Public and High Schools with material for the instruction of their pupils. By a special arrangement made by the Government of Ontario, these articles are furnished to all those schools receiving Gov-

ernment aid, at half their cost. This is one of the manifold advantages of the system, which works, Dr. May says, to a charm.

As an illustration of the cheapness with which the schools are supplied, English publications which are sold at one shilling sterling are provided to the schools at nine cents, Canadian currency. The best arrangements are made both in Europe and this country with publishers, and then the Government disposes of them at 50 per cent. of their original cost. For instance, a book which, in the retail trade here, brings \$1, is sold to the pupils for 35 cents. This plan encourages the prize system, which, it is contended, is greatly superior to the library method, especially in the rural districts. It not only inspires emulation among the children, but makes them ambitious, assists the book trade, and creates a taste for reading. Prize books are much esteemed, the youth struggles for them according to merit card system exhibited here; and a healthy rivalry is formed, which leads to the best results. They are enabled to collect a good class of literature; the mental condition is improved, and, through Government assistance, they are carried into spheres of usefulness which otherwise they would never reach.

Samples of standard volumes, in bright, ornamental covers, are shown, including Chambers' Encyclopedia, bound in calf, and furnished at the rate of \$1 50 per copy; Hugh Miller's works for 35 cents per copy, and resplendent gilt back, half-calf books for 60 cents per volume. The good work is attested in the *Journal of Education* and Ontario Education Reports, full sets of which are on hand, giving a history of the plans pursued from their inception to the present time.

Maps.—From the northern wall are suspended maps of the Hemispheres, Quebec, the United States and the general divisions of the earth, together with relief or raised maps, showing the physical features of the country, and charts and diagrams illustrating every branch of natural science, all of which were made in Ontario.

Two cases are devoted to the display of articles used in object teaching, one of which is employed in the higher grades of schools, and including a collection of mammalia, birds, reptiles and fishes, all Canadian and American in character. For ethnological instruction, there are busts of celebrated men representing every country, which are constantly before the pupils while they are studying, and help to serve to make firm impressions upon the memories. For botanical tuition, models of flowers and plants are used in connection with Gray's Book of Botany, an excellent American work. For teaching Zoology, Mineralogy and Conchology, small cabinets are used, showing specimens of the principal minerals and shells, and their applications to the arts and sciences.

In the schools where natural history is taught, cabinets containing 200 specimens of useful substances of food, medicine, and clothing are employed, and for the chemical departments another cabinet is used, provided with apparatus for performing 200 experiments. As an indication of their cheapness, it may be said that the former are disposed of to the schools for \$5, while they would cost £5 in England; and the latter for the same price, while they would bring \$40 at retail here. Furthermore, they are of the greatest utility, and commend themselves to tutors everywhere.

The kindergarten system is illustrated in diminutive models of bridges, railroads, and mining operations, which are beautiful in themselves, and must be highly attractive to the youthful eye. Electricity, magnetism, galvanism and light, are created by instruments displayed in another case, and adjacent to it is one containing pneumatic apparatus, embracing an air pump in which the cylinders are constructed of glass, the movement of the piston thereby being visible, also objects to show the employment of heat and steam, the appliances of mechanics, hydrostatics and hydraulics. In the teaching of geography and astronomy, globes and atlases are freely employed, and a full line of these are displayed, as is also, a new instrument devoted to instruction in the latter branch of science, entitled the Heliocentric Expositor of Terrestrial Motion, which is esteemed as an admirable addition to the improvements which are being made with such rapidity in educational pursuits.

Over the principal archway or entrance to this section is the British royal coat of arms, handsomely embellished and the largest in the building, and on either side of it is the shield of the Dominion arms and that of Ontario, while beneath the latter is displayed the coat of arms of the Education Department of the Government. All kinds of instruction for the conduct of school meetings and the regulations of instruction rooms, prepared by Dr.

Hodgins, the Deputy Minister of Education, are shown, and last of all, but perhaps most interesting, are samples of work done by pupils of the public schools, consisting of pen and ink sketches, maps, drawings and writing, which indicate the value attached to the modes of instruction, if not a certain precocity upon the part of some of the children. Models and photographs of school buildings are provided.

7. OBJECT-LESSON TEACHING AT THE CENTENNIAL.

(From the Philadelphia Press.)

The necessity of object teaching is now an acknowledged fact. It has been demonstrated that the future progress of our country and the advancement of commerce are dependent upon the progress of science. At the first Universal Exhibition, in 1851, British manufacturers were surprised to find competitors from other nations exhibiting goods superior to their own, belonging to a class of which hitherto they had been proud as a nation. They did not despair, but to overcome the difficulty they established schools of art and design, and offered rewards for the best method of teaching practical science. What England did we require to do. We must make science more popular with our youth. It must be simplified, so as to call forth the observant faculties of very young children. They will eventually develop the perceptive faculties and investigating energies of our youth as they grow up and make them practical people. We, of course, consider the whole Exhibition one huge object lesson, from which we shall acquire practical information which is worth to this country wealth untold. It is impossible to estimate the value this comparison of the productions of different countries will prove even to our own community. We can compare the artistic designs and the fine workmanship so skilfully executed by the artisans of different nations. It behooves us, however, to do something more than this. We must provide the requisites for the advancement of our children, not only that they may keep pace with, but, if possible, take precedence in the future. We have carefully examined the various educational exhibits to ascertain what our educationists are doing in this respect, and are pleased to find that many of our States have adopted the Kindergarten system for very young children, but that seems to be the extent of their object-teachings. The country that exhibits the finest collection of educational appliances for this important branch of education is Ontario. The exhibits of the Canadian School apparatus Manufacturing Company, of Toronto, in the Ontario Education Department in the Main building, have received the International Judges' award for their excellence and cheapness. The system adopted by them to teach natural history is acknowledged to be superior to the old, dry methods by books and charts; instead thereof they teach from nature. For example, take botany: They have cabinets containing the raw and manufactured material, from which the child is gradually brought to understand the nature and uses of the plant examined. Supposing the subject to be wheat, specimens of the seed, bran, flour, biscuit, macaroni, straw, straw plait, straw paper, &c., are exhibited, and as they are properly classified, they not only are useful to teach young children the importance of common things, but they impart a useful lesson in botany. These cabinets, containing on the average 200 specimens illustrative of the animal, vegetable and mineral kingdoms, are sold at \$12 each. The models exhibited by the company for teaching physiology and anatomy are superb. More information can be gained of the true position and the formation of the organs of circulation and respiration, the necessity of cleanliness, the importance of attention to the teeth, &c., by studying these models for a few hours, than can be obtained from books in years of close study. Their system of teaching chemistry, too, is considered by experts to be very superior. This science is so simplified that little children can perform experiments. They have a laboratory for boys and girls, price \$2, containing chemicals and apparatus to perform over 120 experiments in chemistry, manufactures, domestic economy, physiology, &c. Students' laboratories are supplied at \$6 each, with a book, to perform 200 experiments. The laboratories for teachers and normal-school students, price \$12 each, are marvels of cheapness. They contain all the chemicals and apparatus to perform the ordinary experiments with the metalloids as found in elementary books on chemistry. We have no doubt that this important branch of study, which is the keystone to our manufactures, will receive an impetus and become one of the necessary studies in our school system, as we understand several of our neighbouring States have already ordered samples of these laboratories for the purpose of introducing them into their schools.

8. EDUCATIONAL BOOK DISPLAY AT THE CENTENNIAL.

(From the *American Publishers' Weekly*, July 1st, 1876.)

The bookseller's eye is most likely to be attracted at first sight, to the large case containing books in the Government display for the Educational Department of Ontario. Here at B 17 he will find the *bête noire* of the Canadian trade,—the Government Depository.

This is an institution to which, happily, we have no parallel, except so far as our own Government interferes with the private business of the stationers, by furnishing envelopes below cost. It offers to the schools a selected list of books at one-half off, from which list they are to draw their books for prizes, etc. Naturally, the list is said to be antiquated and otherwise objectionable, for private business is not best done by public departments; but of this the visiting trade may judge for themselves, since in this large case (No. 63), is displayed attractively the full list.

9. CANADIAN AND AMERICAN EDUCATION AT THE CENTENNIAL.

(From *Le Courier des Etats-Unis*.)

"The Canadian exhibition or department has over the American one (to which it can only be compared in the proportions of the two countries), the advantage of a perfect order, of an intelligent and methodical classification that presents a sort of tabular synopsis of the resources of Canada in all branches of natural or industrial production. One would say it was a book that one opens, where the matters are arranged chapter by chapter, following a logical chain that goes from the simple to the composite, in such a way that, having reached the end, the reader has his memory stored and his mind edified without effort as without confusion." After referring to the different branches of the Canadian department, which it notices with much commendation, and especially to the display of metallurgic specimens and agricultural machines of all kinds, in which Canada is not surpassed by any other exhibitors, the following allusion is made to the branch of public instruction:—"Finally, and of this the Canadians have, above all, the right to be proud, the section of public instruction deserves to be studied with particular care, even by nations who pique themselves on possessing the best methods of teaching." "In short, Canada merits the greatest credit for this exhibition of resources, which is besides, a demonstration of the honest, orderly, patient, and laborious character of its inhabitants."

10. ONTARIO IN ADVANCE IN EDUCATIONAL DISPLAY.

(From the *Christian Advocate of Buffalo*.)

The Education Department of Ontario, Canada, makes by far the most extensive display of school apparatus at the Centennial of any nation. Seven large show cases in the Main Building are filled with such articles as a selection of some hundred volumes from the school libraries, showing excellent taste; zoological and botanical coloured charts, the objects on the latter greatly enlarged; philosophical apparatus of large size and elegant finish; object-lesson cards, the picture of the animal or plant being accompanied with specimens of cloth, leather, etc., which the animals furnish; prepared specimens in natural philosophy; models of various educational establishments in bristol-board, coloured; section models of steam-engines; large anatomical drawings and models; enlarged geometrical figures in cut glass; wall maps "constructed under the authority of the Educational Department of Ontario;" relief wall maps; specimens of furniture, in fact everything that could be desired in the equipment of a first-class educational establishment. Great praise is due to our neighbours over the northern border for this extensive and costly exhibition, and for the zeal in a great cause which it indicates.

11. FINE EDUCATIONAL DISPLAY FROM ONTARIO.

(From the *Wilmington Republican, Delaware*.)

No one visiting the Exhibition can fail to notice the magnificent display made by the Dominion of Canada. Its educational department especially is very attractive, showing

conclusively that its schools are of the highest order. Where so much attention is given to education, the Dominion must eventually take high rank in the scale of nations. True, it is a dependency of Britain, but instead of benefiting by this connection, the probability is that Britain will be the gainer, if she give heed to the lessons which the liberal and enlightened Canadians will be likely to give from time to time while husbanding their portion of this Continent.

II. COMMENTS OF THE CANADIAN PRESS.

12. ONTARIO EDUCATIONAL SYSTEM AT THE CENTENNIAL EXHIBITION.

(From the Toronto Globe.)

Meritorious as the Pennsylvania display is, it falls far short of our own in some respects, while in general effect it has only the advantages derivable from greater extent and a better opportunity for arranging articles in an artistic fashion. The exhibition of apparatus of every kind from Ontario is far ahead of any exhibit from any other country, and will almost equal the whole of them together. Of specimens of pupils' work, on the other hand, we make a comparatively poor show, the exhibiting institutions being comparatively few. The principal part of the display in the Canadian Department is made by Ontario, the other Provinces doing very little. The chief feature of the Quebec portion is a collection of models of educational institutions on a very small scale, each being surrounded by grounds ornamented with trees like the originals. As works of art they are not bad, but are so diminutive as to appear out of place in an exhibition of our school systems, unless intended to be shown as specimens of pupils' work. A characteristic feature in all the exhibits is the multitude of models intended to illustrate the various kinds of school-house architecture and furniture now in vogue. Some of these models are large, well-proportioned, and very expensive; others are trashy enough. One of the best is to be found in the Ontario collection; it is a model of a typical Collegiate Institute, and must have cost several hundreds of dollars. There are a few good ones to be found in the exhibits of the various States, but hardly any on so large and elaborate a scale. By special permission of the Director-General of the Exhibition, a wall has been erected for the purpose of giving a better opportunity to display the Ontario Educational Exhibit. This is a decided improvement to the whole Canadian Department, as it helps to relieve the dead sea of uniformity caused by the monotonous rows of rectangular cases prescribed by the Commissioners. The educational wall runs parallel with the principal nave, and cuts off the geological display from the rest of the Canadian show. It is 110 feet long, and 30 feet high in the centre, where there is a large archway, through which the petroleum exhibit is visible in the background. The wall is surmounted by the Royal Arms, the largest to be found in the whole Exhibition, while immediately over the archway are placed a scroll label with the Dominion and Ontario arms on shields, and the arms of the Department in relief. The heavy cornice and all the ornaments of the wall, together with the great majority of the articles on exhibition, including maps and apparatus, were made in Toronto. Two smaller archways occur at some distance on either side of the main one. The wall is hung on the right with raised maps illustrative of physical geography, and on the left with ordinary school-room maps. On one side of the main archway a space has been set apart for specimens of pupils' work, for a collection of seals of the English sovereigns, from William the Conqueror to Victoria, and for philosophical apparatus; and on the other side for articles exhibited in connection with the Institute for the Blind, and additional apparatus. Near the archway is a revolving stand containing the photographs of school-houses throughout the Province, and another with pictures of colleges, universities, and other public buildings devoted to educational purposes. In front of the wall there are a number of glass cases filled with articles for exhibition, including a selection of library and prize books; apparatus illustrative of electricity, thermo-electricity, galvanism, light, heat, steam, pneumatics, hydrostatics, and hydraulics; astronomical instruments; a series of models for object lessons in botany, zoology, mineralogy, crystallography, &c.; educational reports, drawing models, geome-

tical instruments, and chemical apparatus. The work of arrangement has been performed in a skilful manner by Dr. May, of the Educational Depository, and the Ontario Education Court as a whole, as well as in its details, may fairly be regarded as one of the most interesting displays in the whole building. The amount of attention it receives from the general concourse of people who are travelling up and down the aisles, as well as from those interested in education on this side, is the best proof of its merits.

13. EDUCATION DISPLAY OF PENNSYLVANIA AND ONTARIO.

(From the Correspondent of the Toronto Mail.)

I have been longing all this time to come to the Educational contrasts. In the Pennsylvania education building there is a representation of a school of the olden time. What a contrast this rickety old school to the schools of to-day! Pennsylvania takes great pride in its schools, and the exhibition of models, maps, etc., is most creditable, as are those from the other States. I am happy to say, however, that the Canadian exhibit in the educational way takes the shine out of them all.

In walking down the centre transept when you come to a certain point, the attention is attracted by nothing so much as by the top of an immense wall of ornamental design, surmounted by a handsome cornice, and pierced by three openings or arches. Over the centre arch is the English coat of arms, of large size—gilt—the smaller ones being crowned by an emblematic lamp of learning and pen-and-ink stand of "Brobdingnagian proportions," to use the felicitous language of one of the officers. This wall or arch is 110 feet long and 30 feet high, and for it exceptional permission was given by the Director-General. It has on the middle inscribed "*Educational Department, Ontario*," beneath the Departmental coat of arms. On the left are the Dominion arms, and on the right those of Ontario, while at each extremity are busts of the Queen and the late Prince Albert. Will it be believed that all this is hidden away as much as it can be? "If" said an enthusiastic educationalist to me, "it has not been so costly as certain other triumphal arches at Paris, Milan, and elsewhere, it is really an arch of triumph more pleasant to contemplate, and giving birth to more pleasant associations." The idea of building this arch was a happy one, and is due to Dr. May. It is the only thing which in the least breaks the monotony of the cases sent from Lower Canada, and gives the means of exhibiting an immense quantity of educational appliances. It is completely covered with plain and raised maps made in Toronto, specimens and illustrations of botany, object lessons and natural history, drawing and writing copies, specimens and illustrations of the physical sciences, zoology, astronomy, etc., manufacture and natural productions, maps, and specimens of writing and drawing executed by pupils, the surface being multiplied immensely by hinged frames, screens and other contrivances.

In the front are nine large glass cases, probably each 500 feet square, surmounted by busts and globes, one of which is thirty inches in diameter, made in Toronto. These cases are full of scientific apparatus of the latest and most varied character, a description of which would in itself fill a large volume, and for single specimens of the greater part of which we search in vain throughout the building. In one are library and prize books for the education of teachers, text books for public and high schools, also a case devoted to the educational appliances for teaching the deaf and blind; another for object teaching, embracing ethnology, the various classes of zoology, botany, mineralogy, geology and crystallography; another for the Kindergarten system; others for optics, astronomy, electricity in all its various branches, chemistry, magnetism, galvanism, anatomical models, pneumatics, mechanics, hydraulics, meteorology, acoustics, &c. There are also stands on which are models, made to scale, of various public and collegiate school buildings in Ontario; large working models of stationary and locomotive engines; school furniture, comprising desks, seats, etc. There are rotary stands seven feet high, each having twenty or thirty hinged frames for showing large-sized photographs and drawings of school buildings in Ontario. Not less than ten thousand objects were exposed and rendered easy to examine. This department of the Canadian portion of the Exhibition has been arranged by, and is under the superintendence of Dr. S. P. May, of the Education Department, Toronto, who, with his assistants, has been busy at work for the past three weeks.

The *Mail* correspondent at the Exhibition further writes:—"Sir Charles Reid visited

the Education Department, and showed the greatest interest. He remained for two hours. He said after his visit two years ago he expected a good educational exhibit from Ontario, but that the exhibit transcended all his expectations; and he took particulars of several articles to order for London schools. So impressed were some of the judges in the section of Instruments of Precision and Research, with some of those in the Educational Department, that he wished to have them made a special exhibit.

"Mr. Whiting, an English correspondent at Philadelphia, and a writer of considerable repute, thus expressed himself with regard to the Canadian Department, in conversation with the *Mail's* special, a day or two ago:—'Canada astonished me. She makes a great show. In every department she is represented, and well represented, and in the machinery;—be it remembered Mr. Whiting was educated as an engineer—'her display is perfectly wonderful. The finest fire engine by a long way is sent from Canada. Her school exhibit is not only better than that from any State of this country, but it is the only thing which redeems the British school exhibit; and I have written this home.'"

14. ONTARIO AND QUEBEC AT THE CENTENNIAL.

(From the *Journal d'Instruction Publique* for the Province of Quebec.)

In the Canadian department, the educational exposition of the Province of Ontario, which is not excelled by any other of the same kind, sums up and represents to the eye of the stranger the best part of our system from Vancouver to the Island of Prince Edward; but no one should thence conclude from this exposition of one section of the country that the other Provinces, Nova Scotia, New Brunswick, and above all Quebec, could not make, if they should undertake the work in earnest, an equally interesting educational exposition. The Government at Toronto has put a large sum at the disposal of the Bureau of Public Instruction: that explains all.

We say frankly that the educational exposition of our Province, as of several of the States of the American Union, is a failure. Our exhibit consists only of an album containing some photographs of our great institutions, and in the display of several models in wood of the buildings of the same. It is very little; we acknowledge it. Still, we must say, that while this album and these models are only a small contribution, they are so installed as to appear badly. By some fanciful arrangement, the album is placed far from the models upon an isolated desk, where it can be found only by chance; whilst the models are installed, those of the colleges in the Canadian section of the main building, in a good place; and those of the convents, in the Women's Department, a mile from there, in the midst of needle-work! The extent of our exhibit hardly justifies this separation—this fanciful classification!

We will not now undertake to show what we would have been able to do had we taken the matter up in earnest. All those who are concerned in the work of education in this Province, well know that our colleges, our convents, and our academies can furnish a collection of books and apparatus that is not excelled by any like institutions abroad. The material of our primary schools might, perhaps, suffer by a comparison; but as a whole even this comparison would not be unfavourable to us. It now becomes the duty of the government and of the legislature to decide whether the Province of Quebec shall endeavour to make amends for the failure at Philadelphia, by sending an educational exhibit worthy of her to Paris in 1878.

15. EDUCATION IN ONTARIO AND THE PHILADELPHIA EXPOSITION.

(From "*L'Instruction Publique au Canada*,"—By the Hon. P. J. O. Chauveau, LL.D.)

Le nouveau Ministre et son Député ont préparé une représentation très-complète de leur département à l'Exposition de Philadelphie.

Nous avons sous les yeux le catalogue des envois du Département, qui peut donner une excellente idée du matériel d'écoles en usage dans cette Province, ainsi que du musée d'éducation dont nous avons déjà parlé. Les plans de maisons d'école, au point de vue de l'hygiène, et les appareils de gymnastique ont excité l'intérêt des visiteurs. A ce catalogue est joint une petite brochure qui expose très-succinctement le système d'instruction publique, les statistiques, et tous les renseignements sur les institutions d'éducation supérieure, les écoles spéciales, etc.—Page 43.

PART VII.

OFFICIAL AWARDS TO THE ONTARIO EDUCATION DEPARTMENT.

The foregoing extracts contain some of the many kind and appreciative utterances of the American and Canadian press in regard to Ontario Educational Exhibit. It is no less gratifying to the people of Ontario to know that these opinions as to the practical value and excellence of the Ontario display, were also entertained by the gentlemen appointed by the Centennial Commission to act as judges in the Department of Education and Science.

From Director-General Goshorn, copies of the two awards which have been made to the Education Department of Ontario have been received.

The following are the names of the Judges in the Department of Education and Science:—Sir Charles Reed, Bart., England, President; Hon. Andrew D. White, LL.D., President of Cornell University, Ithaca, New York; D. C. Gilman, Esq., LL.D., President of John Hopkins' University, Baltimore, Md.; Hon. J. M. Gregory, LL.D., Champaign, Ill.; M. René Fouré, France; Col. John Marin, Spain; Prof. J. W. Hoyt, LL.D., Madison, Wis., Secretary.

1. The first award of a bronze medal is made on the Report of Judges appointed by the United States Centennial Commission to examine and report on the subject of Education and Science.

2. The second award is made on the report of five judges appointed to examine and report specially on Collective Exhibits.

3. A third award of a gold medal was made by British judges appointed by the Canadian Commission.

The first award is as follows:—

INTERNATIONAL EXHIBITION, PHILADELPHIA, 1876.

The United States Centennial Commission has examined the report of the Judges, and accepted the following reasons, and decreed an award in conformity therewith:—

PHILADELPHIA, December 16th, 1876.

1. REPORT ON AWARDS—EDUCATION AND SCIENCE.

Product, Maps, Apparatus, Charts, School-house Models, Pupils' Work, Library, Text and other Books, &c.

Product, Educational Apparatus and Appliances.

Name and address of Exhibitor, Department of Public Instruction for the Province of Ontario, Canada.

The undersigned having examined the product herein described, respectfully recommends the same to the United States Centennial Commission for award, for the following reasons, viz:—

For a quite complete and admirably arranged Exhibition, illustrating the Ontario system of Education and its excellent results; also for the efficiency of an administration which has gained for the Ontario Department a most honourable distinction among Government Educational agencies.

(Signed) JOHN W. HOYT,
Signature for the Judge.

A true copy of the record.

(Signed) FRANCIS S. WALKER,
Chief of the Bureau of Awards. For the Chairman.

Given by authority of the United States Centennial Commission,

(Signed) A. T. GOSHORN,
Director-General.

(Signed) J. L. CAMPBELL,
Secretary. (Signed) J. R. HAWLEY,
President.

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SEAL OF CANADIAN COMMISSIONERS.



CANADIAN GOLD MEDAL.



AMERICAN BRONZE MEDAL.

AMERICAN AND CANADIAN MEDAL AWARDED TO THE EDUCATION DEPARTMENT,
ONTARIO.—Page 38.

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The second award was the result of an examination of our exhibit by an International Committee of five gentlemen, appointed by the Centennial Commission to make reports on collective and national exhibits.

Immediately on the appointment of this Committee, in October, I addressed a letter to the Secretary of the Canadian Commission, requesting him to bring our Ontario Educational Exhibit under their notice. I subsequently, while in Philadelphia, presented to the Committee a summary report on the character of our exhibit, and explained to the members of the Committee several matters connected with the working of our Educational system. (These letters and report will be found in the Appendix.) The results of the examination and report of the Committee on our collective exhibit are embodied in the following copy of an award which was made to the Department by the United States Centennial Commission :—

INTERNATIONAL EXHIBITION, PHILADELPHIA, 1876.

The United States Centennial Commission has examined the Report of the Judges, and accepted the following reasons, and decreed an award in conformity therewith.

PHILADELPHIA, December 16th, 1876.

2. REPORT ON AWARDS—COLLECTIVE EXHIBITS.

The undersigned, having examined the product herein described, respectfully recommends the same to the United States Centennial Commission for the following reasons, viz :—

For a very extensive and attractive collection, illustrative of the growth and extent of the educational system of Ontario, including a great variety of apparatus, maps, charts, models of school-houses, photographs of school buildings, and reports.

(Signed) C. JUHLIN DANNFELT,
Signature of the Judge.

Approval of Group Judges.

(Signed)	J. A. JOHNSON,	(Signed)	T. E. SICKLES,
"	E. OLDENDORFF,	"	T. W. TALLMADGE.

A true copy of the record,

(Signed) FRANCIS A. WALKER,
Chief of the Bureau of Awards.

Given by authority of the United States Centennial Commission,

(Signed)	J. L. CAMPBELL,	(Signed)	A. T. GOSHORN,
	<i>Secretary.</i>		<i>Director-General.</i>
		(Signed)	J. R. HAWLEY,
			<i>President.</i>

3. AWARD OF A GOLD MEDAL.

The third Award was that of a Gold Medal, which was made by a Committee of British Judges, appointed by the Ontario Commission to examine and report upon the various Canadian collections.

4. EDUCATION DEPARTMENT AND THE JAPANESE COMMISSION.

In addition to these satisfactory official testimonies as to the great excellence and practical value of the Ontario Educational Exhibit, it was gratifying to know that in

acknowledgment of "many courtesies received by the Vice-Minister of Education, Empire of Japan, and the Japanese Commissioners, from the officers of the Education "Department of Ontario," the Commissioners have presented to the Museum of the Education Department, a very handsome "pair of bronze flower vases, valued at \$180 "American currency."

The Honourable Fugimaro Tanaka, Vice-Minister of Education, also presented the Department with an interesting collection of Object Lessons and School Text Books.

The following is the official list of exhibitors in the Department of Practical Education and Science, and of those who received medals and awards:—

PART VIII.

LIST OF CANADIAN EXHIBITORS IN THE DEPARTMENT OF EDUCATION AND SCIENCE.

(From the Official Catalogue of Canadian Exhibitors at the International Exhibition, Philadelphia.)

CLASS 300.

Elementary Instruction, Public Schools.

EXHIBITOR: THE EDUCATION DEPARTMENT, TORONTO, CANADA.

NOTE.—From the Official Catalogue: "This is a Department of State of the Province of Ontario, presided over by a member of the Executive Council, who is directly responsible to the Legislature.

<i>Minister of Education</i>	Hon. Adam Crooks, LL.D., Q.C.
<i>Deputy Minister</i>	John George Hodgins, LL.D., F.R.G.S.
<i>Secretary</i>	Alexander Marling, LL.B.

"The educational system of Ontario is set forth in a pamphlet prepared by the Minister for circulation at the Exhibition. (This information will be found on page 44.)

Can. Sch. App. Manufacturing Co. Toronto,	O . . Chem. Labor.; Anat. Models
J. P. Merritt St. Catharines,	O . . Metric Table.
J. P. Merritt " "	O . . Chronological Table.
J. P. Merritt " "	O . . Chrono-table of Canada.
Tennant & McLachlan Hamilton,	O . . Penmanship.
James Pearse Caitham,	O . . Penmanship.
James Brown Toronto,	O . . Chart-stand and Illustrator.
L. J. Beatty Belleville,	O . . Penmanship.
Thomas Hestor Ottawa,	O . . Rotary polar map of the world.
P. M. A. Genest Quebec,	Q . . Map of "La Nouvelle France."
G. N. Tackabury Montreal,	Q . . Dominion Atlas - Maps of Ontario and Quebec.
P. Leroy Quebec,	Q . . System of education.
Ch. Baillarge Quebec,	Q . . Stereometrical Tableau.
Ch. English St. John,	N.B. . . Composition blackboard.
T. C. Jones Montreal	Q . . Penmanship.

301. *Higher Education—Academies and High Schools.*

McGill University, Laval University and fourteen other education Institutions in Quebec.

303. *Institution for the Blind, Deaf, Dumb and Feeble-minded,*

Eleven Hospitals and Institutions in Quebec.

CLASS 306.

School and Text Books.

Lovell Printing and Pub. Company, Montreal,	Q...School and other books.
James Campbell Toronto,	O... Books.
Geo. Webster Hamilton,	O... Bible, printed.
W. G. Sheppard Quebec,	Q... Bible (1555)
A. & W. McKinlay & Co. Halifax,	N. S... Map of N. S.; series of sch. books
Dr. Kollmeyer Montreal,	Q... Two Text Books on Chemistry.

CLASS 320.

Instruments of precision and physical research.

F. W. Albert Meyer Montreal,	Q... Apparatus for determ. inae. points
Hearn & Harrison Montreal,	Q... Surveying and other instruments
Dr. Loverin Montreal,	O... Mnemonic apparatus.
Chisholm Halifax,	N. S... Mathematical scale.

(NOTE.—Three awards by the U. S. Commission were made in this class.)

CLASS 323.

Chronometric Apparatus.

Simon Schwick Barrie,	O... Time Piece.
Lefort & Chapleau Montreal	Q... Watchman's Detector.

CLASS 327.

Musical Instruments.

(NOTE.—Three medals were awarded in this class.)

17. *Exhibitors from Ontario, Quebec, Nova Scotia and New Brunswick*

CLASS 335.

Topographical Maps.

J. Johnstone Ottawa,	O... Geographical drawing
De Borpee Up. Sheffield, N. B.,	Mechanical drawing.
Dr. Honeyman Halifax,	N. S... Portfolio of Geological Maps of N. S.
A. J. Anderson Victoria,	B. C... Physical Map of British Columbia

CLASS 345.

Government and Law.

Ten exhibits chiefly of photographs of places and scenes.

AWARDS BY THE BRITISH JUDGES OF MEDALS OFFERED BY THE CANADIAN COMMISSION
FOR SPECIAL COMPETITION AMONG CANADIAN EXHIBITORS.

CLASS 14.

Educational and Philosophical Apparatus.

Education Department of Ontario, Gold Medal.
Hearn & Hamilton, Montreal, Surveying Instruments, Silver Medal.
Walker & Miles, Toronto, Atlas of the Dominion, Silver Medal.

AWARDS TO CANADIAN EXHIBITORS BY THE UNITED STATES CENTENNIAL COMMISSION.—
INTERNATIONAL COMPETITION.

CLASS 28.—*Education and Science.*

Bronze medal to the Department of Public Instruction, Province of Ontario, Canada.—
Maps, Charts, Models, Text Books, etc.

Lovell Printing and Publishing Co., Montreal, Quebec.—School and other Books.

Hunter, Rose, & Co., Toronto.—Useful Publications—Good Printing.

Nelson Loverin, M.D., Montreal.—Loverin's Historical Centograph.

Canadian School Manufacturing Co., Toronto.—Laboratory and other apparatus.

S. P. May, M.D., Toronto, Ontario.—Collection of Stuffed Animals for Teaching
Zoology.

Young Men's Christian Associations of America and Canada.—Chart showing the loca-
tion of Agencies and Branches, etc.

PART IX.

EXCURSION OF INSPECTORS, TEACHERS AND FRIENDS OF EDUCATION
IN ONTARIO TO THE EXHIBITION.

In addition to the many thousands of Canadians who visited the Centennial Exhibition at Philadelphia, it was thought desirable to afford an opportunity to the School Inspectors and Teachers of the Province to spend a week there, in order to study the Exhibition as a whole, and those details of it which might be of special interest. The Minister of Education made the following recommendation to the Lieutenant-Governor on the subject:—

"The undersigned considers that the Educational interests of the Province will be promoted by teachers and others visiting the exhibition, and in this view would respectfully recommend that His Honour in Council may be pleased to authorize that, in cases where teachers may obtain the requisite permission from the respective Boards of Trustees to visit Philadelphia, on the occasion referred to in the communication of the Committee of the Provincial Association on the 14th of August, and in consequence of which any school may not be open, the days on which such school is so necessarily closed, may be deemed by the Education Department as meeting days, under the General Regulations in that behalf."

This recommendation has been approved; an excursion of the Inspectors, Teachers and other friends of Education took place on the 18th of September, under the direction of Dr. May. The following account of the excursion is thus given by a correspondent of the *Toronto Telegram*.

"In anticipation of the arrival of the teachers, the Public School authorities of Philadelphia had appointed a committee of thirty-four teachers, representing the High Schools and each ward of the city, to receive the visitors, and prepare a programme for their entertainment and systematic study of the most important features of the Exhibition. The teachers assembled in the Judges' Hall on Monday afternoon, under the guidance of Dr. May, of the Ontario Education Department, and were received by the Committee of Reception,—which was presided over by General Eaton, United States Commissioner of Education,—who welcomed them in the name of the teachers of the United States, every one of whom, he believed, would be glad to be present to join in greeting them. General Hawley, one of the Centennial Commissioners, after a short address bearing upon the fact that Canada had done more toward the success of the Centennial than any eight States of the Union except Pennsylvania and New Jersey, expressed, on behalf of the Centennial Commission, his thanks therefor to the representatives of the Dominion present; and on the same behalf he heartily welcomed them all to the Centennial Exhibition. 'The latter,' he said, 'is large, thorough, comprehensive, and grand beyond expectation.' Other addresses of welcome were delivered by Hon. J. P. Wickersham, State Superintendent of Schools for Pennsylvania; Dr. White, Secretary of the Board of Education for the State of Massachusetts; and Edward Shippen, Esq., ex-President of the Board of Education for Philadelphia, who appeared as the representative of that city. Dr. May, on behalf of the visitors, replied that he did not know how to thank the friends who had so cordially greeted them. He was sure that his associates would have been overwhelmed with the kindness they had received, had he not told them in advance what they might expect in the City of Brotherly Love. The Old World prejudices which, it must be acknowledged, had extended into Canada, and for a long time had been in the public mind, had long since been obliterated; and he fully coincided in the belief that the Exhibition would do more than could have been done in many years, in showing to the English speaking peoples that the people of the United States were of the same stock with themselves. Mr. Samuel McAllister, on behalf of the Public Schools of Ontario, thanked the teachers representing the Public Schools of the United States for their generous reception of those for whom he spoke. For the same kindness Mr. Inspector H. L. Slack expressed the thanks of the Inspectors of the Ontario Public Schools. Dr. W. W. Ogden, Chairman of the Toronto Board of School Trustees, then thanked the hosts on behalf of that body; and addresses were made by Mr. Inspector Hughes, of Toronto, Dr. Carlyle, of Toronto Normal School, and Mr. Dawson, of Belleville. General Eaton then introduced the Hon. W. W. McCoy, of Nevada, one of the six Vice-Presidents of the Centennial Commission, who spoke words of welcome on behalf of the Commission; also the Hon. John Lynch, Centennial Commissioner for Louisiana, who in a welcoming speech said that the brightest jewel in America's crown of glory, now receiving the homage of the world at the Centennial Exhibition, is the advancement which she has made in education. The rest of the day was devoted to sight-seeing in the main building of the Exhibition.

"On Tuesday, the day's proceedings were commenced with a visit to the Pennsylvania State Building, which the teachers were invited to make their headquarters during their stay, and from whence they were escorted by members of the local committee of teachers to the educational exhibit of Massachusetts, and from there to the other galleries in which the different State exhibits touching educational matters were to be found. During the afternoon the visitors were waited upon and addressed in brief remarks by several of the representatives of foreign governments at the Exhibition. Count D'Assi, of the Italian Commission, spoke of the progress of education in Italy, of how much had been done and was being done for the advancement of the people, and particularly recommended the system of evening schools in that country. Mr. Gianelli, Italian Consul at Montreal, and Commissioner Penny, of Canada, also addressed the audience. Wednesday was devoted to the European, Asiatic, and other foreign displays; and Thursday the party was divided up into two sections, and taken charge of by the school authorities of the city, who conducted them to the different public and high schools of the city, explaining the modes and system of inculcating knowledge in practice there, and giving practical evidence of the advancement being made by the pupils. The various parties met again at noon at the new Normal School building, an establishment of magnificent proportions which will be opened some time next month. Here a collation had been prepared, and was partaken of by the teachers and their conductors, which was followed by votes of thanks to the school authorities and teachers of Philadelphia. After this, carriages

were provided, and the party driven to Girard College, a marble building, the gift of a banker to the city, for the education of orphans, erected at a cost of two millions of dollars. From here the teachers were driven to the Zoological Gardens, and spent the remainder of the day. During the week arrangements had been made by W. H. Frazer, Esq., by which the teachers and their friends who accompanied them, were admitted to places of entertainment in the evenings at half fare, and at others free of admission. On Thursday evening a meeting was held at Congress Hall, and votes of thanks passed to the Hon. the Minister and Deputy-Minister of Education of Ontario, for the leave of absence granted the teachers, to Dr. May and Mr. Frazer for their zeal and attention, to the Philadelphia School representatives for their great kindness, and to the committee appointed by the Ontario teachers themselves."

Under the heading of "A Noble Example," the Hon. J. P. Wickersham, State Superintendent, and editor of the *Pennsylvania School Journal*, thus refers to this excursion:—

"We have, on more than one occasion, commended the educational exhibit made by the Province of Ontario at the International Exposition. It is highly creditable, and in some respects superior to any other on the ground. We have also been aware for some years that Ontario was making rapid progress in her educational affairs. This information was obtained by a personal visit to some of the schools, and comes to us through reports and periodicals relating to education. But for all this we were hardly prepared for the grand step taken by her school authorities in allowing all the teachers in the Province, over six thousand in number, to close their schools *for a week without loss of pay*, for the purpose of visiting our Centennial Exposition. True such a visit by the teachers will do more for the schools than the best week's work that could have been otherwise done in them; but it is not often or everywhere that this kind of truth is recognised and acted upon by those who manage our schools or guide our school policy. No state, no city, no county of the United States, we believe, has as yet shown an equal breadth of view, or an equal degree of liberality. Ontario has set us a noble example. To what extent shall we follow it?"

PART X.

SKETCH OF THE EDUCATIONAL INSTITUTIONS OF ONTARIO.

BY THE HON. ADAM CROOKS, Q.C. LL.D., MINISTER OF EDUCATION.

As a Report on our Educational Exhibit at Philadelphia would be considered incomplete without some account of the Educational Institutions of the Province, I append herewith the following brief sketch of these institutions, prepared for the exhibition by the Minister of Education:—

STATEMENT RELATING TO THE EDUCATIONAL INSTITUTIONS OF ONTARIO.

This statement relates only to the Educational Institutions of the Province of Ontario. Education is one of the subjects within the exclusive jurisdiction of the Provinces which compose the Confederation of Canada.

The system comprises the following:

- I. The Public and High Schools under the control of the Education Department.
- II. The Schools, Colleges and University provincially endowed, and subject to the control of the Provincial Government.
- III. Institutions for special classes, maintained and managed by the Provincial Government.
- IV. Institutions and Societies partly aided by, or under Governmental supervision.
- V. Schools, Colleges and Universities not under Provincial control.
- VI. Institutions partly educational or reformatory.

I.—Public and High Schools.

The Education Department is entrusted with the control of the Public and High Schools of the Province. The Department, at the last Session of the Legislature of Ontario, underwent an important change in ceasing to be under the control of a Board or Council of Public Instruction, with a Chief Superintendent, and is now composed of a Committee of the Executive Council of the Province, presided over by one of their number, as Minister of Education, and holding office with the other members of the Executive Council, subject to responsibility to the Legislative Assembly, according to the principles of the British Constitution.

The Schools under the administration of the Education Department comprise—(1) Public (or primary) Schools; (2) Separate (or denominational) Schools; and (3) High (or secondary) Schools.

The Province of Ontario possesses a system of municipal or local self-government which is uniform throughout the Province, and while symmetrical in its arrangement, is practical, and rests upon the free action of the ratepayers in each municipality. The organization comprises the (1) minor municipal corporations, consisting of townships, being rural districts, of an area of eight or ten square miles, with a population of from three to six thousand; (2) villages with a population of over seven hundred and fifty; and (3) towns with a population of over two thousand. Such of these as are comprised within a larger district, termed a county, constitute (4) the county municipality, which is under the government of a council composed of the heads of the different minor municipalities in such counties as have already been constituted in the Province. (5) Cities are established from the growth of towns when their population exceeds fifteen thousand, and their municipal jurisdiction is akin to that of counties and towns combined.

The functions of each municipality are commensurate with their respective localities. This municipal organization has been readily adapted to the requirements of a popular or national system of education.

Rev Dr. Ryerson, who, in February, retired from the office of Chief Superintendent of Education, after thirty-three years of able service and devotion in founding and developing the Ontario system of Public Instruction, thus describes the facilities afforded to educational progress by this municipal system, in an address delivered in the year 1851:

"It is in Upper Canada (now Ontario) alone that we have a complete and uniform system of municipal organization, from the smallest incorporated village to the largest city, and from the feeblest school section and remotest township, to the largest county or union of counties—the one rising above the other, but not superseding it—the one merging into the other for purposes of wider expansion and more extensive combination. By their constitution, the municipal and school corporations are reflections of the sentiments and feelings of the people within their respective circles of jurisdiction, and their powers are adequate to meet all the economic exigencies of each municipality, whether of schools or roads, of the diffusion of knowledge or the development of wealth."

In each minor municipality, such as a township, local School Corporations for the township, or for a section thereof, are established, and these are governed by trustees elected by the ratepayers, who are liable for the support of the public schools in their respective localities. The trustees appoint the teacher, who must possess the qualifications required by the Department. They arrange and pay the salary; purchase the school site (which may be acquired compulsorily); build the school-house, and levy rates for all funds which, in their judgment, are required for public school purposes; or may, at their option, require the Corporation of the Municipality to levy the required amount of rates instead. The trustees can establish a circulating library, and may borrow, with the consent of the Municipal Council, money for school purposes. The trustees are under the obligation to provide adequate school accommodation, as defined by the regulations of the Education Department, and sufficient for all children of school age within the school division: to employ the required number of qualified teachers; to permit the children of all residents, between the ages of five and twenty-one, to attend school *free of all charge*; they are bound to keep the schools open the whole year, and to send to the Inspectors and the Department the accounts and reports required by the Law and Regulations; they must also take a census of the children between the ages of five and sixteen years inclusive,

and especially those between seven and twelve years of age, and in case any of the latter have not been under instruction for four months in the year at least, they must notify the parents, and can impose a rate of one dollar per month for each child in case the neglect continues, or may lay a complaint before a Justice of the Peace, who has power to fine, and in default imprison for the offence. Similar powers and obligations reside with the Boards of School Trustees in cities, towns and villages, but these only raise the sums required for school purposes by requisition, according to their own estimate, upon the Council of the Municipality, which is bound to raise the required amount by rate. The Council of the County Municipality is entrusted with additional specific duties in respect of the townships within the county, the most important being to levy by rate an amount equal to the Legislative grant for education, both amounts being solely devoted in aid of teachers' salaries. The County Council also appoints Inspectors, possessing the qualifications required by the General Regulations of the Department; pays one-half of their salaries, the other half being paid out of Provincial funds; and appoints a County Board for the examination of second and third-class teachers. The School Board of each city possesses similar powers, and of towns and incorporated villages some of them. No teacher can be engaged by the trustees unless he holds a certificate acquired after examination according to the General Regulations of the Department, which involve his passing a satisfactory examination upon questions prepared by the Central Committee of Examiners appointed by the Department, and the classification is according to the result of his answering. First-class certificates can, however, only be obtained by candidates from the Education Department or Minister of Education, after passing a satisfactory examination by such a Central Committee.

The County, City and Town Councils, in appointing Inspectors, are limited to such teachers as hold the highest grade of certificate.

The Inspector's duties are to inspect every school at least twice in each year, apportion the Legislative Grant and County equivalent to each school, act as Chairman of the Examining Board of his district, investigate, confirm, or set aside the rural school elections, call meetings of ratepayers, decide disputes; suspend teachers' certificates for cause; give report on the state of the schools to the Department, and generally to see that the Law and Regulations are observed.

The Examiners appointed by the County or City Council must possess qualifications prescribed by the Regulations, and their functions are to examine candidates within their localities for second and third-class certificates, on examination papers prepared by the Central Committee of Examiners.

The Central Committee of Examiners is appointed by the Department from the High and Public School Inspectors, with a Professor in the Provincial University to act as Chairman.

Separate Schools apply to Protestant and coloured persons as well as to Roman Catholics; but this exception to the general Public School system is chiefly confined to Roman Catholics who desire to establish Separate Schools where their supporters are sufficiently numerous to support one. The principle is, that any Roman Catholic ratepayer can elect to support a Separate School, and upon giving the prescribed notice, he is exempted from the Public School rates. They are governed by trustees elected by their supporters, and a corporation with powers similar to the other school trustees. Their teachers are required to possess proper certificates of qualification, and their schools share in the Legislative Grant in proportion to their attendances, and they are also subject to inspection by the Education Department.

The prescribed course of study for the Public School involves reading, spelling and etymology, writing, arithmetic, geography, drawing, music and object lessons for all the classes (being from 1 to 6 inclusive), and requiring $21\frac{1}{2}$ hours of study per week. Grammar and composition begin in the second class; chemistry and botany in the fourth; general history and literature, natural history and physiology, in the fourth class; while in the fifth and sixth classes, civil government, natural philosophy, algebra, geometry, mensuration and book-keeping are also prescribed subjects of study. The following table shows the

Prescribed Subjects of Study for each Class in the Public Schools, and Hours of Study per Week.

SUBJECTS.	I. CLASS.	II. CLASS.	III. CLASS.	IV. CLASS.	V. CLASS.	VI. CLASS.
	Hours per Week.	Hours per Week.	Hours per Week.	Hours per Week.	Hours per Week.	Hours per Week.
Reading and Spelling	6 $\frac{1}{2}$	6 $\frac{1}{2}$	3rd Book, to p. 164	4th Book, to p. 409	4th Book, to p. 409	5th Book, to p. 409
Writing	1 $\frac{1}{2}$	1 $\frac{1}{2}$	3rd Book and Spelling Book	4th Book and Spelling Book	4th Book and Spelling Book	5th Book and Spelling Book
Arithmetic	2 $\frac{1}{2}$	2 $\frac{1}{2}$	Copy Book No. 2	Copy Book No. 3	Copy Book No. 4	Copy Book No. 4, or Book keeping, or Book keeping, Advanced
Geography	4 $\frac{1}{2}$	4 $\frac{1}{2}$	To Reduction.	To Practice.	To Stock.	General Geography, Maps and Common Objects.
Drawing	2 $\frac{1}{2}$	2 $\frac{1}{2}$	Easy Lessons, Common Objects.	General Geography, Maps and Common Objects.	General Geography, Maps and Common Objects.	General Geography, Maps and Common Objects.
Music	1	1	Songs, Natural History, First Steps, Simple Sentences and Descriptions.	Manual and Songs.	Manual and Songs.	Manual and Songs.
Object Lessons	2	2	—	Advanced Sentences, Construction, Narrative, Letters.	Advanced Sentences, Construction, Narrative, Letters.	Advanced Sentences, Construction, Narrative, Letters.
Grammar	—	—	—	First Lessons, First Lessons.	First Lessons and How Plants Grow.	Composition on a Subject, Paraphrase
Composition	—	—	—	Canadian History & British Empire.	First Lessons and How Plants Grow.	First Lessons and How Plants Grow.
Chemistry and Botany	—	—	—	Animal Kingdom.	General History.	General History.
Canadian and English History	—	—	—	First Lessons.	Anatomy.	English Literature.
Natural History	—	—	—	—	Civil Government, Mechanics.	Civil Government, Mechanics.
Human Physiology	—	—	—	—	First Exercises, Pl. I., or Domestic Economy for Girls.	To Quadratics, Books I. and II., or Domestic Economy for Girls.
English Literature	—	—	—	—	First Lessons, For Girls (Lesson 38).	First Lessons, For Girls (Lesson 38).
Christian Morals	—	—	—	—	Surfaces, Single and Double Entry.	Surfaces and Solids, Single and Double Entry.
Civil Government	—	—	—	—	+ Time already counted in.	+ Time already counted in.
Natural Philosophy	—	—	—	—	28	28
Algebra	—	—	—	—	28	28
Geometry	—	—	—	—	28	28
Domestic Economy (Girls only)	—	—	—	—	28	28
Mensuration	—	—	—	—	28	28
Book keeping	—	—	—	—	28	28

* Except in the larger towns, there are few Schools with Classes V. and VI.; the last *several subjects* are not therefore very usually taught.

The following are the statistics of the Public Schools of Ontario for the year 1875 :— Number of schools reported as kept open, 4,834. The number of pupils between the ages of 5 and 16, attending the schools, was 450,805. The school population was 501,083. The number reported as not attending any school is 10,809. The average attendance, namely, being the average daily attendance, divided by the legal teaching days of the year, was 198,574. The number of teachers are 6,018—2,645 being males, and 3,373 females. The following are the qualifications of the different teachers with Provincial certificates :

First class.....	236
Second-class.....	1,088
Old County Board First-class Certificates.....	411
“ “ Second class “.....	163
“ “ Third class “.....	29
New County Board Third-class Certificates.....	3,552
Interim Certificates.....	539

The average salary of male teachers in counties was \$361 ; of female teachers, \$236. In cities, of male teachers, \$728 ; of female teachers, \$295. In towns, of male teachers, \$564, and of female teachers \$267. The Separate Schools are included in the above statement. The number of Roman Catholic Separate Schools is 156, and of pupils 22,673.

The High Schools, like the Public Schools, are open to pupils of both sexes who can pass an entrance examination chiefly in the fourth class work of the Public Schools. The High Schools are intended to furnish a higher English, or a classical course with modern languages, so that the pupils may be fitted to pass the matriculation examination in the University, or to enter business. High Schools which have four masters at least, and an average of 60 male classical pupils, are called Collegiate Institutes. There is a Legislative Grant in aid of these schools, which, supplemented with the County grant—equal to half the Legislative aid—is to be expended only upon teachers' salaries. There is a further allowance out of Provincial funds, based on the efficiency of the schools as tested by the results of the annual examination and by the average attendance of the pupils. The County Council can establish High Schools with the consent of the Provincial Government, and they are subject to the supervision of the Education Department by its Inspectors. The head masters are required to be graduates in Arts of British or Colonial Universities, of proved efficiency as teachers, and to possess a certificate to that effect from the Department.

Each High School is under the government of trustees who are appointed by the County Council, or in case of a city or town separated from a county, by their Councils respectively.

The trustees appoint the teachers possessing the qualifications required by the Regulations, and they also provide for the requisite accommodation, furniture and apparatus, and are empowered to call upon the Municipal Council of their respective districts for such funds as they annually require. The High Schools are under the General Regulations and Programme of Study prescribed by the Department, and are subject to its inspection, and their trustees must report thereto.

The Programme of Study in the High Schools prescribes, English language, mathematics, modern languages, ancient languages, physical science, history and geography, book-keeping, writing, drawing and music ; each school being divided into a Lower and Upper School, and specific subjects are prescribed for the Lower and Upper Schools, respectively. The trustees are at liberty to decide (subject to the approval of the High School Inspectors), according to circumstances, the order in which the subjects shall be taken up, the amount of work to be done in a given time, and the number of classes to be carried on at once.

In the year 1875 the following was the condition of the High Schools :—The number of Schools, 108 ; number of pupils, 8,342.

The Education Department is entrusted with the full central authority for making general regulations for the efficiency of the Public and High Schools, and to that end prescribes text books, library and prize books, programme and subjects of study for the different schools, and for the examination and classification of Public School Teachers, the qualification of High and Public School Inspectors, appoints the Central Committee of Examiners, and Teachers of the Normal and Model Schools, apportions the Legislative Grants, and generally controls all matters relating to the Public and High Schools.

For the better supply of trained teachers, two Normal Schools have been established—one at Toronto, and the other recently at Ottawa. Two Model Schools for boys and girls are attached to the Normal School at Toronto, to aid in the practical training of Normal School students. During the year 1875, 47 male and 51 female students obtained Provincial Certificates at Toronto, the new School at Ottawa being only in the first year of its operation. The total number of students admitted to the Normal School, Toronto, to the end of the year 1875, being the 52nd Session, was 7,543—3,790 being male, 3,753 being female. In the year 1875 the sum of \$3,239,271 was raised for the support of the Public Schools, being derived from the following sources:

From the County municipal assessment.....	\$758,467 00
The Trustees' school assessment..	1,547,125 00
The Legislative Grant and other receipts.....	1,059,862 00
	\$3,365,454 00

Out of these funds the amount paid for teachers' salaries is \$1,758,100; for apparatus, prize books and libraries, \$53,800; for site and building of School Houses, \$702,330; rents and repairs to same, \$148,454; for school books, stationery and expenses, \$330,394.

For High Schools the total expenditure in 1875 was \$332,413. The total receipts amounted to \$348,018, derived from the following sources: Legislative Grant, \$76,042; Municipal Grant, \$160,223; pupils' fees, \$17,990; and other sources, \$79,601. This shows an increase over the preceding year of \$49,057. Out of the receipts, the amount paid for salaries of masters was \$184,752; for building, rents and repairs, \$76,586; books and expenses, \$66,600; apparatus and libraries, \$4,073.

II. Schools, Colleges and University Provincially endowed, and subject to the control of the Provincial Government.

These Institutions come next in order. They are exclusively Provincial, being supported by Provincial funds and subject to the General control of the Government, but possessing their own Councils or governing bodies, and are not within the jurisdiction of the Education Department—as such.

UPPER CANADA COLLEGE was founded in 1828, upon the model of the great Public Schools of England, and was endowed with a large grant of public lands, from which it now derives an annual income of \$15,000, in addition to its building and grounds in the City of Toronto. Its pupils number about 300, and it aims at preparing them for matriculation in the Provincial University, and for different professions and pursuits. It is governed by a Committee of the Senate of the Provincial University, under Statutes passed by it from time to time; but such Statutes are subject to the approval of the Lieutenant Governor of the Province. The curriculum extends over a six years' course of study in the same number of forms, and embraces Greek, Latin, mathematics, French, German, English, grammar, literature and composition, history and geography (both ancient and modern), natural philosophy, experimental chemistry, physiology, Biblical knowledge, the usual commercial branches, drawing, music, gymnastics, fencing and drill exercises.

In other forms, known as the Lower and Upper, modern commercial and scientific training can be obtained. The examinations in each form are quarterly. Scholarships may be established by the different County Councils, while four exhibitions have been founded out of the University funds, each exhibition being the result of a competitive examination, and tenable for one year, in the fifth and sixth forms. Its staff of teachers comprises the following:—2 Classical Masters, 2 Mathematical Masters, 4 English Masters, Drawing Master, Gymnastics and Drill Master. This School and the High Schools already referred to, constitute the principal feeders of the Provincial University.

The corporate designation of the University is that of the UNIVERSITY OF TORONTO. It was originally established by Royal Charter, and endowed with a grant of public lands in 1828. The annual income from this endowment now exceeds \$55,000. The institution was inaugurated and opened for students in 1827. The governing body now consists of the Senate. The Convocation, composed of all the graduates, elect the Chancellor and fifteen

members of the Senate, the Provincial Government nominating nine. The Senate has power to confer degrees (but not honorary degrees) in the several faculties of Arts, Law and Medicine, and certificates in Engineering and Agriculture, after the different examinations prescribed in the curriculum, and subject to its provisions for attendance upon lectures in University College, or other affiliated schools or colleges. The Senate can also provide for local examinations, and may recommend to the Lieutenant-Governor in Council the establishment of Professorships in any department of knowledge, science or art, in University College.

The functions of the University comprise the examination of candidates for standing scholarships, and degrees in the several faculties. It prescribes the curriculum of study, and appoints the examiners, and conducts the respective examinations; it also maintains a library and museum.

The work of instruction is performed by UNIVERSITY COLLEGE through its Professors and Lecturers. This College and the University are maintained out of the common endowment of the Provincial University, which is administered by the Bursar's Department, under the control of the Lieutenant-Governor in Council. University College is governed by a Council composed of the President and Professors. The following chairs have been established in the College, namely: Classical literature, logic and rhetoric, mathematics and natural philosophy, chemistry and experimental philosophy, history and English literature, mineralogy and geology, metaphysics and ethics, meteorology and natural history, and lectureships on Oriental literature, in German and French, Italian and Spanish.

The course of instruction follows that prescribed by the curriculum of the University of Toronto, and involves four academic years, each consisting of two terms.

The students are required to pass a matriculation examination for entrance to the College, and also to the University, before being entitled to be recognised as regular students; and the examinations prescribed in the College are at the expiration of each term, while the examinations for standing in the University of Toronto are required to be annual. Students who are not matriculated may attend lectures in the different departments.

Besides University College, which forms part of the Provincial University system supported by the Provincial endowment, there are several institutions which, maintained from private sources, are affiliated to the University, and are entitled to send up to its examinations students who have conformed to the prescribed curriculum. Amongst such may be mentioned the Canadian Literary Institute at Woodstock, and the Toronto School of Medicine; but these properly belong to another class, and need not be further considered here.

Since the opening of the University in the year 1843, the number of students who matriculated up to the end of the year 1875, is as follows:—In Law, 116; in Medicine, 336; in Arts, 918; in Civil Engineering, 33; and in Agriculture, 20; or the total number of 1,423.

The number of degrees conferred in the several faculties is also as follows:—In Law, 118; in Medicine, 328; and in Arts, 728; or the total number of 1,174.

Scholarships in the different faculties are annually awarded upon the result of the examinations in the University. There are thirty-nine in the Faculty of Arts alone, in sums of \$120 and \$80 respectively.

Since the year 1840 the aggregate number of scholarships awarded in that faculty is 721.

The seat of the University and University College is in the City of Toronto, where they occupy their own building, which is of Norman architecture, specially designed for their purposes, and situate in spacious grounds. The cost of the building alone exceeded \$350,000.

III. Provincial Institutions for Special Classes maintained and managed by the Provincial Government.

The Legislature of the Province has established several Institutions of a specific character, and maintains them by annual grants out of the Provincial revenue.

In 1870 the INSTITUTION FOR THE EDUCATION OF THE DEAF AND DUMB was established in the Town of Belleville. Such pupils as are unable to be maintained by their parents or guardians are clothed, boarded and educated free of charge. The course of study comprises the usual English education, namely: history; geography; arithmetic; writing and drawing, also articulation. The boys learn the following trades: carpentering, cabinet-

making and shoe-making, and knowledge of the farm and garden. The girls are taught sewing, knitting and general domestic work. The number of pupils is more than 210.

In 1871 the INSTITUTION FOR THE BLIND was established in the Town of Brantford. Its object is the instruction of blind pupils of sound intellect in the ordinary branches of an English education, in vocal and instrumental music, and in certain mechanical arts within the reach of the blind. No pupils can be admitted excepting for the purpose of instruction; and all over the age of twenty-one are excluded except under special circumstances, and only for a single season as probationary. Admission is refused to the aged, infirm or to imbeciles. Pupils unable to pay are boarded and taught gratuitously.

The chief expense of the maintenance of the Institution is borne by the Provincial Treasury.

The number of pupils during its last session exceeded 140.

The SCHOOL OF PRACTICAL SCIENCE was established in 1873, and buildings secured where lectures of a practical character are given on chemistry, geology, and physics; and classes are instructed in linear, construction, and free hand drawing.

In 1874, the SCHOOL OF AGRICULTURE at Guelph was opened. Its objects are (1st), to teach the practice and theory of husbandry to young men engaged in agriculture, or intending to so engage; and (2ndly), to conduct experiments of general interest to agriculture. The farm in connection with the institution consists of 550 acres.

The regular course comprises two years, and instruction is given in Agriculture, Horticulture, Natural Science, including Chemistry, Veterinary Surgery, Anatomy, and Physiology. The buildings provide accommodation for 50.

The sum required annually for the maintenance of these Institutions amounts to \$85,000.

IV. Institutions and Societies partly aided by or under Governmental Supervision.

MECHANICS' INSTITUTES may be established as Corporations under a general Act, for providing a library and evening classes. Each is entitled to receive from the Legislature an annual grant of \$400, conditional upon the local contribution being at least \$200, and upon being subjected to Government inspection.

These exist in almost every town in the Province, and 15 Institutions are reported last year to have held evening classes, with an attendance amounting to 772, for instruction in English grammar and composition, arithmetic, geometry, and mensuration, penmanship, book-keeping, practical mechanics, chemistry, geometrical and decorative drawing, and free hand drawing.

Several societies, partly educational, are also annually aided out of the Provincial Treasury, such as the AGRICULTURAL AND ARTS ASSOCIATION, the ONTARIO SOCIETY OF ARTISTS, the CANADIAN INSTITUTE, and the ENTOMOLOGICAL SOCIETY.

V. Schools, Colleges, and Universities not of a Provincial Character.

Causes of a social and denominational character have given origin to several Schools, Colleges, and Universities which, maintained by their special supporters, are taking part in the work of education in the Province. Of these, few are to be found in the rural districts, and the number in all does not much exceed 200. But schools of a private nature, and some of a superior order, are to be found in the cities and larger towns. These together number 297, with some 8,000 pupils, and 570 teachers.

Of a social or denominational origin, may be mentioned: Episcopalian—Trinity College School, Port Hope; Bishop Hellmuth's College, London, for Boys; Bishop Hellmuth's Ladies' College; Bishop Strachan's School, Toronto; Church of England Ladies' School of Ottawa; while the Wesleyans have established a Female College at Hamilton, and the Ontario Ladies' College, Whitby; as well as an Institute for Boys at Dundas; the Methodist Episcopalians have a Ladies' College at Belleville; the Presbyterians a Ladies' College at Ottawa and at Brantford; the Roman Catholic body have several institutions under their exclusive charge, such as Saint Michael's College, Toronto; La Salle Institute, Toronto; Loretto and Saint Joseph's Convents, Toronto; and Assumption College, Sandwich.

From many of the schools just mentioned, some of the pupils proceed to the denominational Colleges and Universities to be next mentioned, and some to the Provincial University.

Under denominational control, the following Colleges and Universities are to be noticed:—

(1.) THE UNIVERSITY OF VICTORIA COLLEGE, Cobourg, which obtained University powers in 1841, to confer degrees in the several faculties which comprise Arts and Science, Theology, Law and Medicine. The Senate is the governing body, and the College is chiefly supported by an income derived from an endowment of about \$100,000, contributed by voluntary subscriptions.

(2.) UNIVERSITY AND QUEEN'S COLLEGE, at Kingston, under the control of the Presbyterian Church of Canada, formerly in connection with the Church of Scotland.

This College was incorporated by Royal Letters Patent in 1841, and endowed with University powers. Its income is derived from an endowment fund of about \$100,000. Its teaching work is confined to the faculties of arts and theology. Since the opening of the College, 871 students have been enrolled, and 526 degrees conferred.

(3.) THE UNIVERSITY OF TRINITY COLLEGE was established for the instruction of members of the Church of England, and obtained a Royal Charter in 1852, which empowered it to confer degrees in divinity, law, arts and medicine. It is supported by an endowment obtained from subscriptions in England and in Canada, and is governed by a Convocation, consisting of the Chancellor, the Provost and Professors, and persons of the standing of Master of Arts or of any degree in divinity, law or medicine. Subscription is required to the effect that the student is a member of the Church of England, but is not required from any candidate who is not a member of the Church of England.

(4.) ALBERT UNIVERSITY was established at Belleville by the Methodist Episcopal Church in 1857, and obtained University powers in 1871. It is under the government of a Senate which confers degrees in arts, law, music, theology and engineering.

(5.) THE OTTAWA COLLEGE is under the direction of the Roman Catholic body, and obtained University powers in 1866.

Denominational Institutions of a like character to the preceding have been established by other religious bodies, but without acquiring University powers, their main object being for the education of youths for the ministry in their respective Churches.

The Presbyterian Church in Canada established KNOX'S COLLEGE, in 1844. The course is chiefly theological, and the College now owns and occupies a commodious edifice in Toronto. It has acquired a considerable endowment from private subscriptions.

HURON COLLEGE, situated at London, is of like character in connection with the Church of England. It was founded in the year 1863, and acquired its building and endowment by private subscriptions chiefly obtained in England. It is purely a theological college, and pledged to the maintenance of the principles of the Church of England known as Evangelical.

THE CANADIAN LITERARY INSTITUTE, at Woodstock, while affiliated with the University of Toronto, in connection with its course of instruction in arts and science possesses a theological department for the training of ministers in connection with the Baptist Church.

The foregoing is an enumeration of most of the Institutions whose origin may be traced to social or denominational causes.

In connection with professional pursuits, the Law Society of Ontario maintains a LAW SCHOOL, in which lectures are delivered to students, and upon an examination being held, Scholarships may be awarded upon the result.

For instruction in medicine the following schools exist:—

THE TORONTO SCHOOL OF MEDICINE, affiliated to the University of Toronto; the MEDICAL DEPARTMENT of the University of Trinity College; the ROYAL COLLEGE OF PHYSICIANS AND SURGEONS at Kingston; there is besides a Veterinary College in Toronto.

VI.—Institutions partly Educational or Reformatory.

In addition to the institutions properly educational, there are others whose objects are of some such character, and which are striving for the amelioration and reformation of those classes which come within the scope of their operation. Of these may be noticed those directly maintained out of the Provincial funds, and controlled by a Department of the Government. In the PROVINCIAL REFORMATORY, Penetanguishene, there are 173

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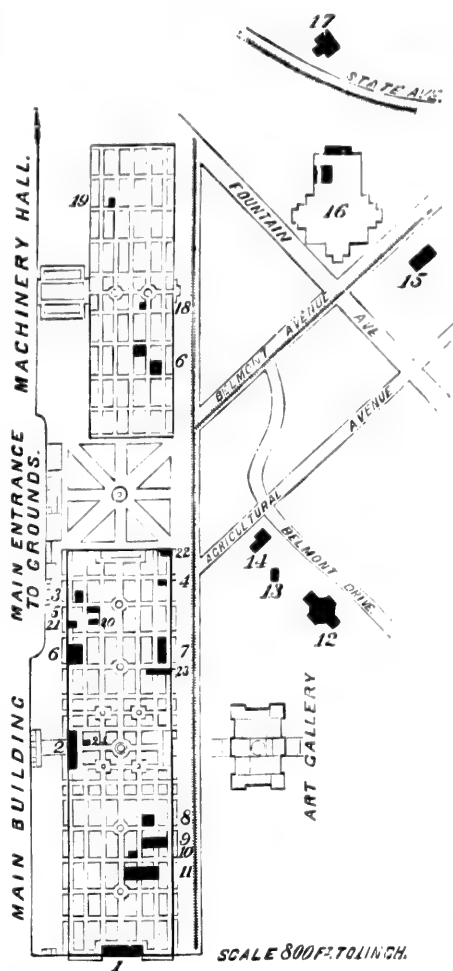
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CENTENNIAL INTERNATIONAL EXHIBITION.

GUIDE TO EDUCATIONAL EXHIBITS.—Page 52.



1. Massachusetts (in East Gallery).
Illinois.
Indiana.
Ohio.
Kentucky.
Maryland.
New Hampshire.
Michigan.
Wisconsin.
Connecticut.
2. New Jersey.
Rhode Island.
Maine.
Iowa.
Missouri.
New Orleans.
Tennessee.
Hampton, Va.
Am. Missionary Association.
3. Japan.
4. Norway.
5. Sweden.
6. Russia.
7. Ontario.
8. Switzerland.
9. Belgium.
10. Brazil.
11. Netherlands.
12. Pennsylvania.
13. Kindergarten American.
14. Swedish School House.
15. Kindergarten Froebel.
16. Government Building.
Education in United States.
17. Massachusetts State Building.
18. Worcester Free Institute.
19. Cornell University, N. Y.
20. Egypt.
21. Hawaii.
22. Italy.
23. Great Britain.
24. Germany.

(South Gallery, Centre Main Building.)

NOTE.—Exhibit No. 7, "Ontario," also included some Models of Educational Institutions sent from the Province of Quebec, and a few Educational matters from Nova Scotia.

boys, who have been committed to it on being tried for criminal offences. Part of their time is given to instruction and part to training in various industries, and the general results of the treatment have proved favourable.

The CENTRAL PRISON was established by the Province in 1873, for the purpose of reforming ordinary offenders whose sentences were of limited duration. The prison has been constructed at an expense of about \$420,000, and is probably one of the best prisons, in all respects, to be found on the continent. The short experience of its effects shows that the influences are of a beneficial and reforming character. Offenders consigned to it are free from the contaminating associations to be found in the ordinary gaols of the Province, and being instructed in various trades, leave the prison better fitted for earning an honest living in the future.

The Public Schools are unable to reach the class of neglected children which are to be found in cities and the larger towns, and Boys and Girls' Homes have been established by individuals and Societies to meet this want. They care for, educate and train a large number of such children, and their efforts are aided out of the Provincial Treasury according to the number who are cared for in each institution.

Finally, while religious instruction in the Public Schools is optional with trustees, teachers, parents and pupils, the Sunday Schools existing in the Province exceeded in 1875, 3,900, with 236,600 scholars, and 22,700 teachers.

Relying upon these popular and national agencies, and those which special considerations have developed, the Province of Ontario is steadily pursuing a career of progress, material, moral and intellectual.

While the foregoing presents some indication of the efforts of the Province in striving to become a civilized and well-ordered community, its people understand that their future progress, welfare and happiness mainly depend upon the continued efficiency and improvement of these educational agencies under their free constitutional system of government.

ADAM CROOKS,

Minister of Education.

EDUCATION DEPARTMENT, ONTARIO,
Toronto, April, 1876.

PART XI.

THE EDUCATIONAL EXHIBITS OF VARIOUS STATES AND COUNTRIES AT PHILADELPHIA.

In order to present a complete view of the educational features of the Exhibition, as a whole, I shall refer to the more striking points in of the educational collections of various countries as exhibited at Philadelphia. I shall then give in connection with this reference, a brief companion sketch of the present condition of education in these States and Countries.

It is due to these States and Countries, to say that I have taken them in the order, as it appeared to me, of the comparative merit of their respective educational exhibits. For this reason I shall have to abandon any attempt at geographical classification or sequence; but this is necessary, in order to judge of the quality, extent and variety of each country's exhibit. With this view, I have classified the exhibits as follows:—

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| 1. The State of Pennsylvania. | 5. The Kingdom of Belgium. |
| 2. The (Kingdom) of Sweden. | 6. The Empire of Japan. |
| 3. The Empire of Russia. | 7. The United States (Bureau of |
| 4. The Swiss Confederation. | Education). |

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| 8. The Republic of France. | 17. The State of Illinois. |
| 9. The State of Massachusetts. | 18. The State of Indiana. |
| 10. The State of Ohio. | 19. The State of Michigan. |
| 11. The State of New Jersey. | 20. The State of Wisconsin. |
| 12. The Kingdom of the Netherlands. | 21. The Empire of Brazil. |
| 13. The State of Connecticut. | 22. The (Kingdom) of Norway. |
| 14. The State of Rhode Island. | 23. Miscellaneous. |
| 15. The State of New Hampshire. | 24. Education in Countries not represented at Philadelphia. |
| 16. The State of Maine. | |
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I. THE EDUCATIONAL EXHIBIT OF THE STATE OF PENNSYLVANIA.

The educational exhibit made by the State of Pennsylvania, was by far the most extensive and systematically arranged of all of the School exhibits at Philadelphia. It just lacked, however, what the Ontario exhibit had in such variety, in order to make it the most complete, as it was the most extensive of the educational collections at the Centennial. The skill and energy which the State Superintendent of Public Instruction (Hon. J. Wickersham) evinced in collecting and arranging the material placed in the "Educational Hall" of his State, was remarkable. Every educational interest in Pennsylvania seemed to have had a fitting representation in the niches or alcoves of the "Hall;" while the whole exhibit, taken together, presented an admirable bird's-eye view, or *coup d'œil*, of the material results and progress of education in the State.

That such was intended to have been the character of the entire American Educational Exhibit is clear from the observations on the subject made at public meetings, by the able United States Commissioner of Education (General Eaton), by the Hon. Mr. Wickersham himself, as well as by other noted American Educationists. Had the views of these gentlemen prevailed, "the American Educational Exhibit," would, as a whole, have been, as Mr. Wickersham expresses it, in his last report, "the grandest and most interesting American feature of the great display."

The American people had the strongest incentive to realize this hope of their own countrymen, and the expectation of strangers. Not only had they won a highly honourable educational position at Vienna, in the very centre of monarchical Europe in 1873, but enlightened European Statesmen and Educationists had, in most complimentary terms, referred to the fact that it was to the United States they looked with so much interest for examples of the highest development in America of systems of Public Instruction. This was the view expressed, (as already quoted in this report, page 3) by the Austrian Minister at Washington, Baron Von Schwarz-Senborn, Director General of the Vienna Exposition of 1873, Austrian Commissioner at the International Exhibition of London in 1851 and 1862, and of Paris in 1855 and 1867. M. Kippeau, also a well-known French writer on Education, in speaking of the then forthcoming American Exhibition of 1876, says:

"There will be many objects to attract the attention of foreign visitors, but we may boldly affirm that none will produce a deeper impression than the Educational Exhibit, and

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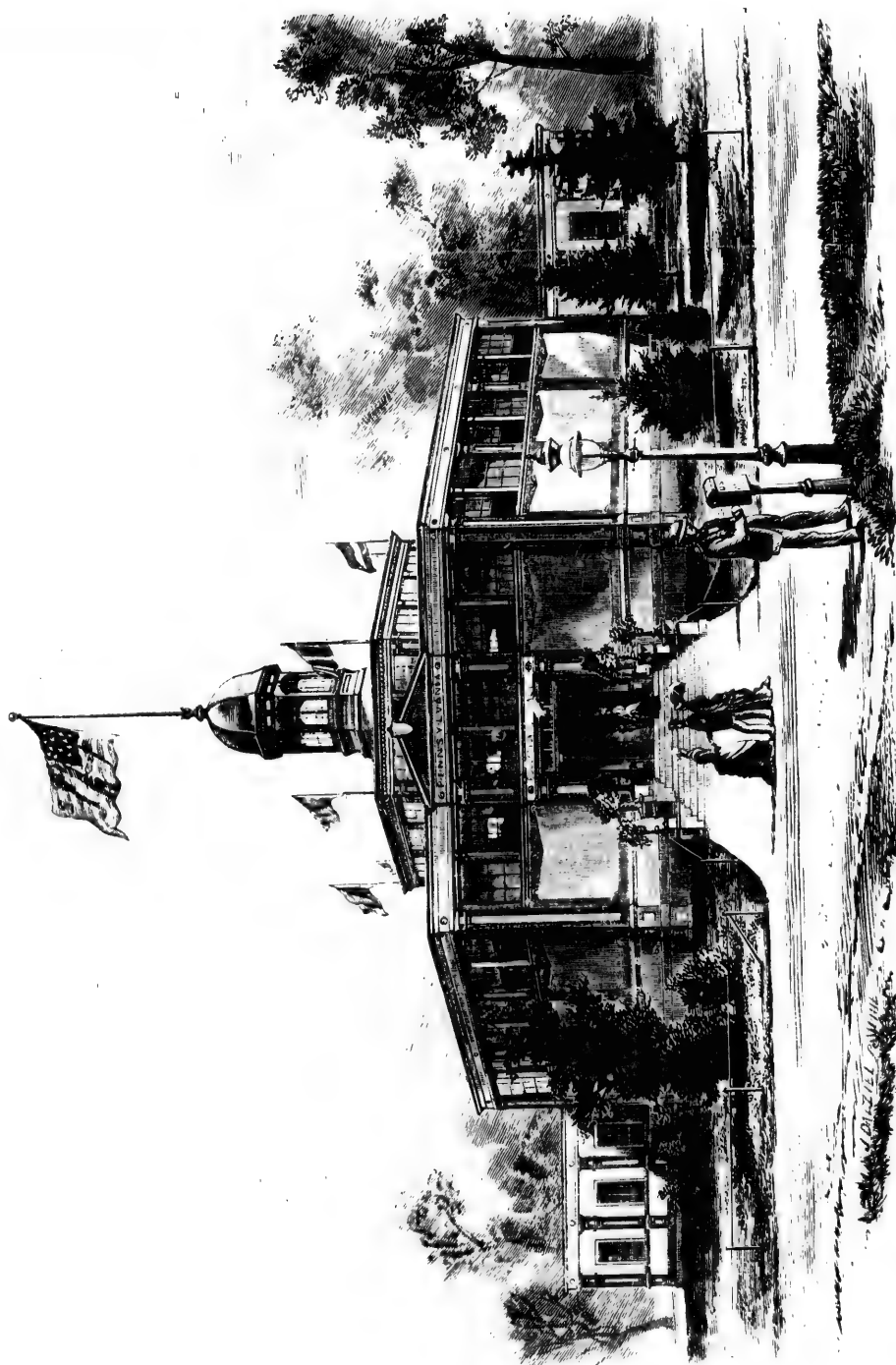
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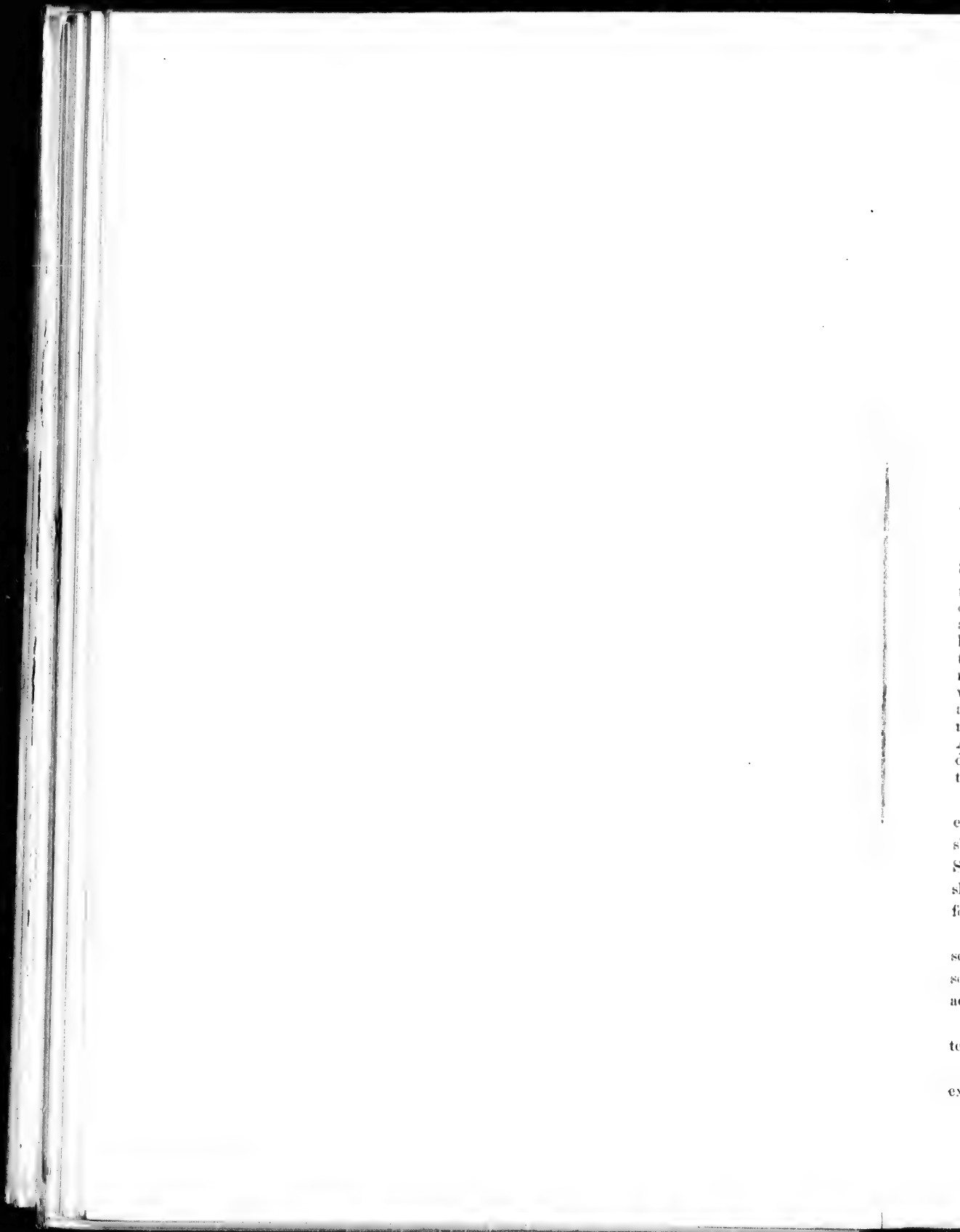
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EDUCATIONAL HALL, STATE OF PENNSYLVANIA. CENTENNIAL INTERNATIONAL EXHIBITION. Page 54.



this for the following reasons: The United States have the right to feel proud of their Public Schools and Institutions to produce enlightened and educated men for the honour and prosperity of their Republic..... Have our people thought of letting our teachers derive some profit from this unique occasion to study everything the United States have done for Education in the way of school organization, methods of instruction, educational apparatus hygienic regulations, etc."

The leading American Educationists quite understood what was expected of them by foreign nations. This, Mr. Wickersham, as their mouthpiece, expressed in an address on the subject, delivered in August, 1875, he said:

"Thousands of distinguished citizens from abroad will visit Philadelphia next year (1876), for the sole purpose of studying our systems of public education. These systems are everywhere recognized as the only salt that can save institutions like ours. They are the centre of our national life. In them is found the chief source of the strength of the Republic. The political philosopher who understands them will find no difficulty in understanding all that we have to show—all we are.

"With a view to make the American Educational Exhibition a credit to the Republic, it was originally designed to place it in the main building, within an area of 2000 feet long and of a reasonable width, so as to allow for counter and floor space, no State to occupy more than 100 feet of wall. Delays and other causes prevented this desirable plan from being carried out; so that instead of one grand combined exhibit of the whole educational resources of the United States, the whole extensive and valuable collection with one exception (Pennsylvania), was scattered and hid away in a very small and inconvenient gallery."

The consequence of this delay in preparing for a full educational exhibit of the various States, was, as Mr. Wickersham says in his late annual report, "that no State made a full representation of educational interests, and many States were not represented at all. The exhibit as made was broken up into fragments, and located, some in one place and some in another, in the different buildings about the grounds. Pennsylvania erected a building of her own; Massachusetts occupied a gallery over the east entrance of the main building, while those of others, with that of the National Bureau of Education, occupied space in the Government building; and fragments of what ought to have been one united, well-organized whole, were scattered about the floor of the Main Building, the Women's Pavilion, and some of the annexes. This disorganized mass of material, excellent as it was in parts, distracted, if it did not disgust, the hundreds of learned foreigners who came to the Exposition expressly to study American systems of education, and lost to us an opportunity that may never occur again of doing justice to the great efforts our people in all sections of the country have made to educate themselves."

The failure early in 1876 to carry out the original plan of grouping the educational exhibits of the several States together in the Main Building, stimulated the Hon. Mr. Wickersham to proceed at once with the erection of a very handsome "Educational Hall" for the State of Pennsylvania, at a cost of \$12,000. So urgent was the case, that, as Mr. Wickersham states, "the Hall was under roof before any money was obtained with which to pay for it."

I mention these facts to show the great difficulties experienced by the Americans themselves in giving their educational exhibit that prominence at the "Centennial" which they so justly and eminently deserved; and also to show how unselfish they were in giving so admirable a position in the Main Building to our own and other foreign school exhibits.

From this necessary digression I shall now proceed to point out some of the more interesting features of the Pennsylvanian Exhibit.

The Pennsylvania Educational Hall provided 20,000 square feet of wall surface for exhibitors. It was octagonal in shape (as shown in the engraving.) Not including the

wings, it was 100 by 100 feet, the wings were 40 by 24 feet. The centre contained an octagonal room 48 by 48 feet. In the wings there were apartments for the State Superintendent's office, conference and sitting-rooms, etc. The main aisle was ten feet wide, with alcoves on either side eight feet deep. In these alcoves were admirably arranged articles, or other illustrations, relating to Kindergarten; Common School appliances of 1776 and 1876; School Ornamentation; Orphan Schools; Schools for the Blind; for the Feeble-minded; Schools of Design for Women; Sunday Schools; Academics; Seminaries; Colleges; Universities; Normal Schools; the Education Department, etc., etc.

In addition to these departments of the Pennsylvanian Exhibit, there were very admirable collections of School furniture, School apparatus,* maps, charts, text-books, and other appliances for Schools.

I shall now refer to the specialties of the Exhibit as they presented themselves to me.

1. The admirable and systematic arrangement of the whole exhibit, its extent and variety. If it had any defect it was that of being too miscellaneous.

2. The Pennsylvanian *ideal* Common School.—This consisted of a complete collection of furniture, maps, apparatus, stationery (70 articles), and text-books suitable for a Common Country or Village School.

3. Elaborate models and photographs of School-houses and Grounds.—These models were admirably prepared, and the photographs were, on the whole, excellent.

4. Illustrations, books, charts, diagrams made by apparatus, and decorations for Sunday Schools.—This unique exhibit was very extensive and complete. It was contributed by the Protestant Episcopal, Presbyterian, Lutheran, Baptist, Quaker and Jewish Churches of the State, as well as by the American Sunday School Union.

5. School Ornamentation, including a fountain with fish, twining vines, hanging baskets, flower pots and vases, statues and statuettes, mottoes and engravings.—This collection was one of the most interesting and suggestive, as well as the most philosophical in the exhibit. In the pleasing features of "school life" the Americans excel all other nations.†

6. Matters of Historical Interest.—This exhibit consisted of a "condensed" model of the interior of a School of '76, and by way of contrast, one of 1876; also, valuable historical portraits of persons identified with the cause of education in the State from its earliest history.

7. Students and Pupils' Work.—This Department, although not peculiar to the Pennsylvania Exhibit, was yet here in almost exhaustless variety. The elegance and finish of much of this work, especially from the Colleges and higher Seminaries (and many Public Schools), were subjects of frequent remark and commendation.

* From the collection exhibited by Mr. N. H. Edgerton, I selected, with the aid of Dr. May, a number of very excellent articles for our Depository and Normal Schools.

† So deeply impressed have I been of the softening and elevating influence of refinement in the ornamentation of School premises, both within and without, that I have devoted two whole chapters to the subject in a second edition of a recent work which I have published on "THE SCHOOL HOUSE: ITS ARCHITECTURE, EXTERNAL AND INTERNAL ARRANGEMENTS." I have treated this subject under the following heads:—The Influence of an Attractive School House—School Houses should be Pleasant Way Marks—School House Influence on the Morality of its Frequenters—Children's Ineffaceable Memories of the School House (Examples)—Ornament your School, as well as your Home, Grounds—Reasons why we should Provide Rural Refinement—School Flower Show—How to Arrange Flowers about School Premises, etc.

As a general rule, examples of pupils' work—most of it very excellent, and executed with skill and accuracy—was the great staple of the Educational Exhibits of the various American States. Indeed, to my mind, its profusion was rather a defect than a special excellence.

It was an elaborate exhibition of "results" rather than an illustration of "processes," or "modes" of instruction, with corresponding examples of the appliances of education. I shall, however, refer to this subject in another place.

BRIEF SKETCH OF EDUCATION IN PENNSYLVANIA.

From the descriptive Catalogue of the State Exhibit, prepared by Mr. Wickersham, I extract the following statistics and explanations:—

Extent of Territory—square miles	46,000
Population in 1870	3,521,791
Number of persons in the State in 1870 between the ages of five and eighteen	1,076,000
Estimated number in 1876 between six and twenty-one (the school age).....	1,200,000
Number of Pupils enrolled in the Public Schools in 1875	890,073
Average number	551,848
Estimated number in other than Public Schools	60,000
Number of Public Schools in 1875	17,092
Number of Graded Schools in 1875....	5,625
Number of School Directors in 1875	13,825
Number of Superintendents in 1875.....	89
Number of Teachers in 1875	19,880
Average salaries of Male Teachers in 1875, per month	\$41 07
Average salaries of Female Teachers in 1875, per month	34 09
Average length of School Term—months, nearly.....	7
Average cost of tuition per month for each pupil	80 92
Cost of tuition in 1875.....	\$4,476,875 52
Cost of buildings, &c., in 1875	2,059,464 83
Cost of fuel and contingencies in 1875.....	2,448,315 78
Other appropriations and expenses in 1875	272,411 10
Cost of Soldiers' Orphan Schools, paid directly by the State, in 1875	423,693 76
Total expenditures for School purposes in 1875	9,950,760 99
State appropriations to Common Schools.....	1,000,000 00
Amount raised by local taxes levied for School purposes	8,131,980 45
Value of School Property in 1875	24,260,787 00

The figures below show the growth of the Public School system in the past ten years from 1865 to 1875:—

	1865.	1875.
Number of graded schools.....	1,743	5,625
Number of Superintendents.....	65	89
Average salaries of male teachers	\$31 82	\$41 07
Average salaries of female teachers.....	24 21	34 09
Cost of tuition.....	\$2,515,528 63	\$4,746,875 52
Cost of school houses.....	465,088 08	2,059,465 83
Total cost	3,614,238 55	9,363,927 07
Number of teachers attending County Insti- tutes.....	2,755	13,863
Number of Normal Schools.....	3	9

STATE DEPARTMENT OF PUBLIC INSTRUCTION AND SCHOOL OFFICERS.—The State Superintendent is appointed by the Governor, but the appointment must be confirmed by a vote of two-thirds of all the members of the Senate. He holds his office for four years, and at present his salary is \$3,750 and travelling expenses. He is aided by two deputies, one chief clerk, two Inspectors of Orphan Schools, and five other officers. County Superintendents of Schools are appointed by the County School Directors once in three years; are commissioned, if no valid objection is made before him to its being done, by the Superintendent of Public Instruction, and are subject to removal by him for cause. There are sixty-five such officers now in commission. There are also in office twenty-three city and borough Superintendents appointed in the same way. The average salary paid the County Superintendents is a little less than \$1,200 per annum, and that paid City and Borough Superintendents something over \$1,500 per annum.

NORMAL SCHOOLS.—The city of Philadelphia has a well appointed Normal School for Girls, established in 1848. It is connected with the public school system of the city.

Under a State law passed in 1837, there are nine State Normal Schools in successful operation, with an attendance of nearly 1,000, and property valued at \$1,000,000.

COUNTY INSTITUTES.—A Teachers' Institute of a week's duration is held in every County of the State once a year, under the direction of the Superintendent. The main object of the Institute is to impart professional instruction. The attendance in 1875 was, of teachers 13,865; of School Directors, 1,935. The lecturers and instructors numbered nearly 500. The several counties appropriated for this purpose \$13,145.

TEACHERS' EXAMINATIONS AND CERTIFICATES.—Three grades of Teachers' Certificates are granted by Superintendents, and two by Boards of Examiners at Normal Schools. The first grade of certificate granted by Superintendents is called "Provisional." The second grade, called a "Professional" certificate, is granted by Superintendents to those who possess a thorough knowledge of certain branches, and have had successful experience in teaching.

The third grade, called a "Permanent" certificate, is granted by the State Superintendent of Public Instruction to any teacher holding a "Professional" certificate who is recommended by the Board of Directors for whom he has taught, a Committee of five teachers holding the higher grades of certificates, elected by ballot at the County Teachers' Institute, and by the Superintendent of the proper jurisdiction. This certificate is good for life in the jurisdiction where issued, and for one year within the jurisdiction of any other Superintendent.

The Board of Examiners at a Normal School is composed of the Superintendent of Public Instruction, or Deputy, as President, two Principals of Normal Schools, and two County or City Superintendents.

The means of Secondary Education in the State are:

1. Public High Schools.
2. Public Graded Schools with Departments for Higher Instruction.
3. Ungraded Public Schools with Pupils in Advanced Studies.
4. Academies and Seminaries.
5. Boarding Schools and Private Day Schools.
6. The State Normal Schools.

The Normal Schools furnish instruction in the higher branches annually to about three thousand students.

HIGHER EDUCATION.—In 1870, according to the census, Pennsylvania had six Universities and thirty-three Colleges, with three hundred and forty-nine professors, and six thousand three hundred and fifty-seven students, of whom one thousand four hundred and seventy were females. Not all the institutions thus reported enjoy full collegiate rank.

TECHNICAL EDUCATION.—The Polytechnic College of Philadelphia comprises a scientific school and five technical schools.

The Lehigh University and Pennsylvania State College are more technical than literary in their aims, and are doing a good work in fitting young men to direct the various industries of the State. Lafayette College, the University of Pennsylvania, and the Western University of Pennsylvania, have strong, well organized, technical departments. The Night School for Artisans, under the public school authorities of Philadelphia, the Department of Technical Education connected with the High School at Pittsburgh, the addition of branches of study

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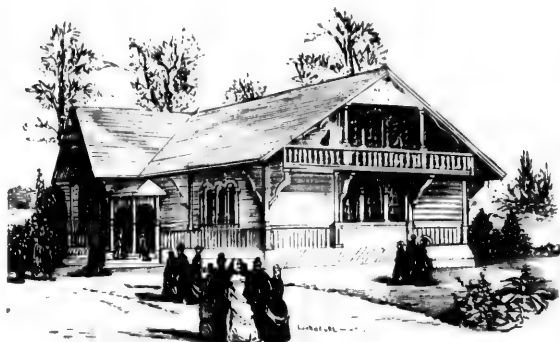
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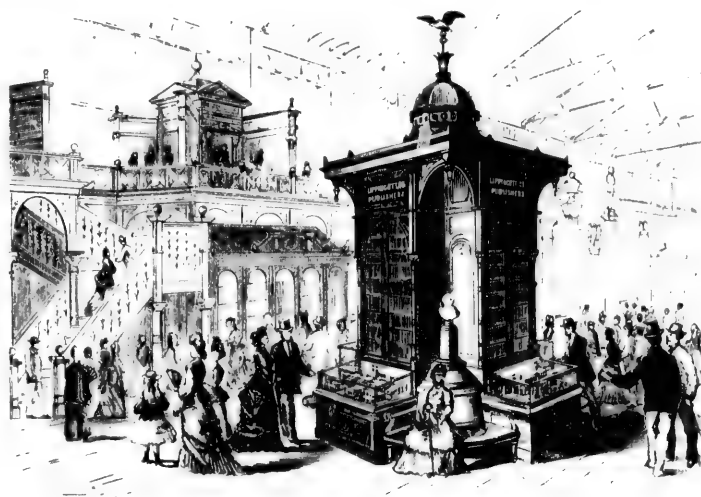
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MODEL OF SWEDISH SCHOOL HOUSE. —CENTENNIAL INTERNATIONAL EXHIBITION. Page 59.



THE AMERICAN BOOKSELLERS' EXHIBIT.—MAIN BUILDING.—CENTENNIAL INTERNATIONAL EXHIBITION. Page 202.

of a technical character to the courses of High Schools in others of our cities, all point clearly to the adoption of a policy favourable to technical education. The Franklin Institute, of Philadelphia, has long laboured in the cause of practical science; and the Wagner Free Institute is doing a good work in the same direction. We have two flourishing Art Schools or Schools of Design, one in Philadelphia, and the other in Pittsburgh. There are also Commercial Schools and Schools of Dentistry, Music, Elocution, and Calisthenics. In the field of Natural Science, Art, and Literature, the American Philosophical Society, the American Historical Society, the Numismatic Society, the Academy of Natural Science, and the Academy of Fine Arts. There are 14,849 public and large private libraries, containing 6,377,845 volumes; 600 periodicals, circulating nearly 4,000,000 of copies; and hundreds of flourishing Lyceums and Literary Societies.

PROFESSIONAL EDUCATION.—The Medical Colleges of Pennsylvania are widely known; There are also a number of Theological Schools and several Law Schools.

SOLDIERS' ORPHAN SCHOOLS.—In 1865 Pennsylvania established a comprehensive system of schools for the destitute orphans of her soldiers killed or crippled in the late civil war. Into these schools 8,500 children have been gathered from all parts of the State, fed, clothed, instructed, and cared for until sixteen years of age, at a cost to the State of \$5,000,000. Of charitable institutions, Girard College for Orphans is the most noted. It has now a sufficient income to maintain and instruct 1,500 children.

II.—THE EDUCATIONAL EXHIBIT OF THE KINGDOM OF SWEDEN.

This Kingdom had already distinguished itself by its educational exhibit at the Paris Exposition of 1867, and especially at the Vienna Exhibition of 1873. But, as these places were in Europe, it was a less difficult and expensive undertaking, to transport a large variety of articles to the French and Austrian Capitals, than it was to have them despatched to the New World. It showed great enterprise and decision on the part of a comparatively small kingdom, in the north of Europe, to enter into competition with so formidable, and noted an educational competitor, as the United States of America.

The study of the educational contribution from Sweden, was, however, a great treat to the Americans, as it was to Canadian Educationists, who visited Philadelphia. The mode adopted by Sweden to illustrate her processes of education, was most striking and instructive. Few who visited the exhibition, would likely visit Sweden; she, therefore, in effect, transported to Philadelphia, as it were, a little shady nook of a rural village, with its quaint, but tasteful School-house.* Once within its doors, the visitors would be as literally in one of the village schools of the kingdom, as he would be were he in Sweden itself. There was the hall or entry, with its fittings and huge barometer—the school-room with its tile stone, desks and seats, teacher's platform, musical instruments, maps, illustrations, apparatus and other appliances, the teacher's private room, or class-room, and above all, the teacher's apartments, occupying one side of the school-building.†

Hon. Mr. Philbrick, the excellent Superintendent of Public Schools in Boston, thus refers to his own experience at Vienna, where a Swedish School-house had also been exhibited. He says:—

* The size of this very neat building, was 40x50 feet. The frame work of the School house was brought from Sweden. The Architects were Messrs. Isens and Jacobson, and the Exhibitor, C. O. Wengstrom, of Stockholm.

† In connection with this peculiarity of the Swedish School-house, I may say, that as teachers in Sweden are generally married men, provision is made in the School-houses for their accommodation, and a plot of ground is assigned to them for cultivation, as a garden. I have referred to Norway farther on.

"I had made some effort to take out with me to Vienna, an edifice to illustrate our idea of a Model School-room, with its fittings. I felt pretty sure that nothing but money was wanted to make this project a complete success; but when I entered the beautiful Swedish School-house, and took my seat on the Master's platform and surveyed the spectacle presented by the school-room, with its apparatus and fittings, I felt glad that my attempt to bring over a school-room had failed, because I could not have matched what I saw before me. I reckon that the State of Massachusetts will get paid for the cost of sending me to Vienna, a hundred times over, by the benefit derived from the knowledge of the idea of a school-room (German and Swedish) which I brought home with me."

In addition to the Swedish School-house, its fittings, furniture, and apparatus, there were about 400 other articles, illustrative of educational systems, methods, and libraries exhibited.

In speaking of the Swedish exhibit, the editor of the *Pennsylvania School Journal* says:—

"Among the school apparatus and appliances exhibited, there are maps much superior in fulness, accuracy, and execution, to any school map we have in this country, some philosophical apparatus, very fine geological, botanical, zoological, and other charts, a chart of weights and measures, and collection of birds, fishes, plants, fossils, etc.

"We were particularly interested in a case containing, in small spaces, specimens of ores, rocks, nuts, grains, seeds, plants, insects, shells, etc. This case is probably not over five feet square, and may be two or three inches in depth. It is placed against the wall, and consequently occupies but little room. Its contents are several hundred specimens of objects, of a character admirably adapted to interest and instruct young children. With a little effort, and a few dollars of expense, it could be placed in any school-room. In our primary schools, as material for object lessons, its value would be incalculable.

"Nor. For teaching arithmetic seems to be well adapted to the purpose. We were surprised to find a frame arranged to aid children in comprehending the decimal scale in numbers. In the frame two hundred and fifty-three holes of three different sizes, holes of the first size being ten times as large as those of the first; and those of the third ten times as large as those of the second. The horizontal rows contain nine holes of each size, the nine smallest ones being on the right hand, and the nine largest ones on the left. Little pegs or sticks are provided in bundles. The small holes will hold one each, the next in size ten each, and the largest ones a hundred. By this simple contrivance children can readily be taught to count, and to understand how ten units make one ten, ten tens one hundred, etc."

The whole of the Swedish educational display was in charge of Professor C. J. Meijerberg, Special Commissioner of the Education Department, Stockholm. At the International conference on educational matters, which took place in Philadelphia, during the Exhibition, this gentleman gave much valuable information as to the practical working of the Swedish system of education. He arranged with me to give his aid in procuring at Stockholm, for our Educational Museum, some of the Swedish school apparatus, &c.

I have referred to the school exhibit of Norway in chapter xxii.

BRIEF SKETCH OF EDUCATION IN SWEDEN.

The official account of the present state of education in Sweden, prepared for the Centennial, is so voluminous that I avail myself of a sketch of it (which I condense) written from Philadelphia by a correspondent of the *Chicago Tribune*:—

"*The Teacher*.—To the teacher is assigned the treble duty of instructing the youthful mind in book-lore, religion and practical art, half of the salary is paid by the Government, the other half by the people. To this is added fuel and fodder for his cow; every teacher who has been in the service for thirty years is allowed a pension for the remainder of his life, equal to three-fifths of his salary. If, after ten years of teaching, he becomes an invalid, or is disabled in any way from pursuing active duties, he may still retire on the same pension.

“Grades of Schools.”—There are three grades of Schools in Sweden—the infant schools, primary schools, and the high schools. Education in the first two grades is compulsory, the infant schools (chiefly Kindergarten) are generally conducted by women; each school containing about twenty pupils. In this school the child receives its first lessons in reading and writing, with a little of arithmetic. The A. B. C. book (on exhibition) has this peculiarity that it teaches reading and writing at the same time. Thus, on the first page is the alphabet in Roman letters, while on the opposite page is the same in written characters. The child learns to associate each written character as he acquires it, with the printed letter; and the task is scarcely more difficult than learning either one alone. In forming the written characters in the copy-book, the Swedish pupil is aided at first by straight lines having the slant of writing, and placed closely together across the page.

“The primary school is the common school of the country. It does not correspond with our school of the name, being far more comprehensive. It embraces the whole of our public school in all its departments—primary, intermediate, grammar, and high. The qualifications of a teacher in the primary school are rigid. He is obliged by law to have previously attended a Normal school for three years, and to have passed a sufficient examination. Only within the past few years have women been admitted to teach in the primary school, and even now the number of female teachers is small. The branches taught are reading, writing, grammar, religion, arithmetic, geography, history, natural history, physics, chemistry, singing, drawing, gymnastics, military drill, etc. The law of compulsory education is strictly enforced. No parent can delay sending a child to the primary school after the ninth year. The course of instruction usually lasts until the fifteenth year. The children of poor parents have privileges from which the wealthier are excluded, for they are allowed to get off with the minimum of instruction in the several branches. They can also arrange to attend school only one day in each week—Saturday—or to attend continuously three months in the year. The former plan is very generally adopted by the poorest, since Saturday is the day on which the studies of the week are reviewed, and by application and evening study the poor scholar can keep up with his class, and rehearse with the regular pupils in the lessons of the week.

“The laws of Sweden make it very unpleasant for illiterate people. Children are not allowed to go to the Lord’s Supper without passing an examination in reading and writing, and young men and women must prove their ability to read and write before being allowed to marry; and the Government insists upon a rigid enforcement of the law.

“Religious instruction is an important feature in the Swedish school system. It has its friends and its opponents among the people, but with them the question is whether the teacher should give actual instruction in the Bible and Catechism. There is a large party which holds on this question the theory that religious training should belong exclusively to the clergy. The prevailing religious denomination is the Lutheran, and, of course, the religious teachings in the schools are on the Lutheran basis. Yet, while the Lutheran church is all powerful, other denominations are allowed full liberty, and in the chief cities may be found Baptists, Methodists, Roman Catholics and Jews, who worship according to their own forms. There is a provision in the school law by which if the parent belongs to the Baptist or other persuasion, he sends a written request to the head teacher that his child be excused from that part of the course, and the request is always respected. Religious instruction comprises Bible reading, Bible history, instruction in the Catechism, singing hymns, and prayer. This comes immediately at the opening of school, and generally lasts half an hour.

“METHODS OF TEACHING.—Some very excellent methods of teaching the common branches are shown in the Swedish school-house. For beginners in geography, for instance, there is a blackboard upon which is painted an outline of Sweden—simply the coast lines and the rivers being depicted. In place of towns there are only little iron pins fastened into the board at the points where these towns should be located. Accompanying the board is a little box containing a large number of oblong blocks, each half an inch in length. Upon one side of the block is printed the name of some town. On the opposite side of the block is a small hole, fitting exactly the pins on the blackboard. The pupil is required to select a block from the box and place it on a pin, which should rightly locate the town printed on its face. Any one will see how greatly this simple apparatus relieves the tedium of study. The pupil finds it not a dry and difficult task, but an interesting recreation and amusement.



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"In maps I noticed one set which is worthy especial mention. The first, by means of different colourings, showed the location of high and low lands in Sweden. The second showed by the same means the various elevations of the country; the third, the water-masses; the fourth, the river systems; the fifth, the comparative fertility of different parts of the country; the sixth, the density of population; the seventh, the political divisions; the eighth, the post-roads and railroads. These maps are furnished to every school at Government expense. There was a series of coloured prints ornamenting the walls, illustrative of the manners of life in the different provinces. An arrangement for purifying the air in the school-room was to be seen, in the shape of a brass box about one foot square, containing pine tar. A specimen of the stove in general use is exhibited. It stands twelve feet high, and contains three funnels, the heat passing up one, down another, and finally up the third in the middle.

"THE HIGH SCHOOLS.—Above the Common or Primary School is the Higher Common School. This, although under the protection of the Government, has of late years lost very much of its importance, owing to the competition of the numerous Academies, which are founded on a more liberal basis. These Academies had their origin in Denmark some twenty years ago, in a time of war, when there was need of awakening all the patriotism of the younger people. At these schools the practice of singing national songs was introduced, and found to be popular and beneficial. The idea spread into Sweden, and twenty years ago the first of the Common High Schools was opened. In these, only the very ablest and most experienced men were employed as instructors, most of them having attained distinction at the two great Swedish Universities. The importance of having good teachers may be seen at once, when it is stated that the pupils themselves are frequently men who are thirty or forty years old. The schools are only open in the winter, and the full course lasts about two years. They are supported by contributions from the people of the district where they are situated. The Grammar School, corresponds closely to the High School. Besides the ordinary branches, are taught theology, Hebrew, ancient and modern languages, (including English), higher mathematics, chemistry, physic, etc. Studies are divided into two courses—the Humanistic, or Classic, and the Realistic, or Mathematical. Still higher in grade are the Universities of Upsala and Lund, justly celebrated throughout Europe. In special instruction there are Polytechnic Schools, six Technical Schools, Agricultural Schools, Sailors' Schools and Schools of Forestry.

"WORK BY THE PUPILS.—A collection of work by the pupils of the Technical Schools at Norrköping and Örebro, the Grammar Schools of Malmö, and the Sloyd Skola of Stockholm, is exhibited in the Swedish section of the Main Exhibition Building. In looking at it, even the casual observer must see that it denotes a high state of skill and education. There is a thoroughness in the execution of the various specimens—whether they be drawings, wood carvings, or plaster casts—that places them at once in the rank of the productions of the Art and Industrial Schools of Munich, Vienna and Dresden. The Stockholm school is largely represented. A bas-relief carved from hard marble shows graceful intertwining of flowers and foliage. In free-hand drawing there are several busts, the contour in each being perfect, and the shading as delicate as if engraved. From the Elementar-Skola of Malmö, I noticed particularly a drawing of a human foot, with an accompanying drawing of a cat's paw. The muscular construction in each was well handled. There are numerous original designs—one for paper-hanging that especially was attractive. From Örebro there was a Corinthian porch carved of wood, quite ornate. There were hundreds of other exhibits, such as carpets from the Val-Skola at Boas, lacquer-work, silver chasings, linear drawings, façades, etc. Taken altogether, the educational display of Sweden at the Exhibition is far more satisfactory to any one interested in this subject than that of any foreign country."

III.—THE EDUCATIONAL EXHIBIT OF THE EMPIRE OF RUSSIA.

The Educational display of Russia at the Exhibition surprised everybody. It was expected that "in barbaric pearl and gold," and her exquisite Malachite jewelry and articles of *Vertu* she would have excelled; but in the matter of popular education, it was

thought that she had taken no special interest. Yet it was otherwise. It is true that at the Paris Exhibition she had only three exhibitors in Group X, classes 89 and 90, relating to "Education," etc.; and at Vienna, in 1873, she is reported by Hon. J. W. Hoyt, the experienced American Commissioner, as having, with some other nations named, an exhibition in this department "so entirely unsatisfactory as a means of conveying any just idea of the condition and progress of education in the country, that it furnishes no warrant for more than this mere mention of the delinquency."

By referring to the information furnished by Russia herself, this meagre display in the educational department may be easily accounted for.

It is not much more than fifteen years since Russia made any advance in educational matters. After the emancipation of the serfs by the present Emperor in 1861, he set himself, with the aid of wise counsellors, to devise a scheme of general education in 1862.

Thus, for instance, while little or no educational facilities existed in Russia at the time of the emancipation of the serfs in 1861, yet within five or six years nearly 10,000 primary schools were revived or called into existence for the enlightenment of these very serfs.

Nor was this movement half-hearted on the part of its promoters. The government and the clergy vied with each other to promote this great work, so that within a short time the church provided instruction for nearly 400,000 children. The state on its part did not fail in its duty, for the Budget of the Minister of Public Instruction was increased from about 1,000,000 roubles for primary schools, in 1863, to nearly 6,500,000 for primary, secondary, and superior schools in 1865.

RUSSIAN EDUCATIONAL DEPOSITORY AND MUSEUM.—As an outgrowth of this remarkable educational revival, and as an evidence of far-seeing sagacity (as the history of the movement has proved), the Government of Russia, established in 1864, an educational depository, or museum, of school furniture and apparatus, which has since grown to such grand proportions.

The Museum was at first founded at the Russian Capital, in the exclusive interests of the military schools.

In 1871, the functions of this Museum or Depository, were enlarged, and it was erected into a grand "Pedagogue Museum," and constituted as an independent section of the "Grand Museum of Practical Science of St. Petersburg." (I shall, however, refer to this branch of the subject in another chapter.)

The Russian exhibit at Philadelphia was, as I have intimated, a gratifying surprise to the large numbers of Educationists who visited the Exhibition. It consisted of four parts:

1. Specimens of school furniture, maps, charts, models and apparatus, and other educational appliances from the Pedagogic Museum, or Educational Depository.
2. Specimens of pupils' work, chiefly from Stroganoff's Central School of Technical Drawing at St. Petersburg.
3. Specimens of minerals from the Mining School of St. Petersburg.
4. Maps and other Government publications of various departments.

The first and second parts of the Exhibition excited special interest, particularly the

models, apparatus and appliances for schools. These were in great variety, and of a highly practical character. In the official catalogue they are thus classified :—

1. *Chartography, picture albums and atlases*.—The Chartographic establishment of the members of the Committee of the Pedagogic Museum, Commissioner of the Chief Staff, Colonel of the General Staff, Ilyin. 6 lithographic machines (König et Bauer Würzburg), 6 hand machines (Brissé à Paris), 8 hand machines (Lutter in Berlin), 2 glazing and stone polishing machines, brought into action by 6 H. P. Steam Engine (St. Galli, Petersburg), 6 printing machines (Alisoff), 2 photographic apparatus and 4 relief machines. There are 149 employés and workmen in the establishment. It produces all kinds of lithographic, chartographic and oleographic work down to printing of labels and autographs to the amount of above 400,000 roubles, including sale of its own publications. The annual quantity of printed copies amounts to six millions. It possesses 7 medals and 2 honorary mentions, obtained at various local and international Exhibitions, during the period from 1867 to 1875.

2. *Articles made of plaster of Paris and papier-mache*.—1. Schindhelm's Workshop, formerly Heyser's, an immense assortment of models in ethnography, universal and Russian, models of animals, as well for educational as agricultural purposes, manikins, &c. 2. Female work-shop, types of the human races and anatomical models. 3. Strembitsky's Laboratory for producing articles for school, and scientific cabinets of natural history. The laboratory is remarkable for its very correct and carefully finished work. (Specially noteworthy are movable models of india-rubber with papier-mache.) 4. The Workshop of the Juvenile and Pedagogic Library in Moscow: preparation of terrestrial globes.

3. *War-Work*.—The above-named laboratory of Strembitsky.

4. *Preparation of skeletons and stuffed animals*.—1. Strembitsky's Laboratory. 2. The School Workshop in Leshtookoff's Lane, St. Petersburg. 3. Messrs. Perstchetsky and Prihodko, preparators of the Academy of Science.

5. *Articles of Wood*.—1. Strookoff's Workshop. 2. The School Workshop. 3. Yeropkin's Workshop in Moscow. 4. The Workshop of the J. a P. Library in Moscow.

6. *Articles of metal, wood and glass*.—1. Brücker's and Bauler Workshop of physical and cosmographical apparatus. 2. Sperling's Workshop for apparatus in mathematical geography (Nosoff's apparatus.)

7. *Drawing models*.—The Commissioners of Museum, Messrs. Fenoult & Co., and Beggroff's Workshop.

8. *Preparations in spirits of wine and Injections*.—Strembitsky's Laboratory.

9. *Models in Crystallography*.—Skibinefsky's Workshop.

10. *Gymnastics and class furniture*.—Strookoff's and the School Workshop.

11. *Games*.—School Workshop and the Workshop of the Society of Ladies.

12. *Articles for excursions in natural history*.—The School Workshop.

13. *Aquaria, terraria, and small hothouses*.—The School Workshop and Mullert and Bart's.

14. *Maps in Relief*.—Mikhayloff and Schoolgin's Workshops.

15. *Publications for the people*.—Company of General Utility.*

16. *Slides for the magic lantern*.—Yermolin's photography at the Pedagogical Museum.

17. *School-harmoniums*.—Workshop of Lucas and others.

18. *Special trade in school apparatus and text-books*.—Messrs. Fenoult & Co., Commissioners of the Pedagogic Museum and military schools. These gentlemen accept orders for all Russian as well as foreign school apparatus.

Address: Commissioners of the Pedagogic Museum, Solianoy Gorodok, St. Petersburg.

* This Co. published and sold above 1,500,000 copies on different branches of knowledge. It possesses one of the largest printing offices 5,000 poods (36 lbs.) of types, 10,000 wood-cuts, 11 printing machines, 8 hand machines and 10 subsidiary machines, brought into action by two steam engines. There are 200 employés and workmen in the establishment. The annual quantity of printed copies amounts to 25 millions. It possesses a medal obtained at the exhibition in 1870.

The Hon. E. A. Apgar, Superintendent of Public Instruction for the state of New Jersey, thus refers to these features of the Russian and Ontario exhibits in his recent report to the Legislature : He says—

"Russia made an extensive and instructive exhibit. It consisted mainly of apparatus selected from the Pedagogic Museum of St. Petersburg. This museum, as is set forth in its catalogue, has for its leading object, 'The collection of information regarding the manufacture of school apparatus in Russia and abroad, and to exhibit as complete a collection as possible of educational apparatus, both of home and foreign make, with a view of facilitating educational establishments in the choice of proper apparatus suitable to their requirements. It was begun in 1864, and its growth has been wonderful. It now contains 2,700 kinds of illustrative apparatus suited to all branches of instruction and all grades of educational institutions, and also a teachers' library of 12,000 volumes. In variety, simplicity and excellence, they excel those of every other exhibit made. This Institution in some respects, is similar to that already referred to at Ontario. It differs from that, however, in being a receiver of apparatus only, and not a distributor.* That at Toronto collects and supplies the schools. The Canadian collection consisted of articles that as a rule were more expensive than those composing the Russian collection. Every article in the St. Petersburg exhibit, while exceedingly ingenious and adapted to the use intended, seems to have been made to sell for the lowest sum possible. They are substantial, however. The Mining School of St. Petersburg sent a fine collection of mineral specimens, and there is a large display of drawings from Stroganoff's Central School of Technical Drawing at St. Petersburg, that was surpassed by nothing of the kind exhibited, except by that from the South Kensington Museum. The exhibit from this Institution included designs for various fabrics, and for cabinet, silver bronze, and porcelain ware. They were rich and beautiful."

The second part of the exhibit contained a good collection of beautifully-finished specimens of students' work, chiefly from the Technical School at St. Petersburg.

The fine art specimens were well executed ; while those relating to technical art were no less creditable, and showed a wonderful progress in these subjects of late years in Russia—the causes of which I shall now consider.

I have already referred to the remarkable advance which Russia has made of late years in education. We do not require to seek far for the causes of this wonderful progress. The final issue of the Crimean war taught the sagacious Russian a terrible lesson. It taught that proud and self-reliant nation at Sebastopol, as it did the self-confident Austrians at Sadowa, that the physique and courage of the uneducated soldier, when armed with the most deadly weapon, were as nothing when opposed to the skilful fingers and enlightened bravery and forethought of the comparatively educated rank and file of Britain or Prussia.

M. Emile de Laveleys, of the University of Liege, Belgium, in a thoughtful article in the *Revue des deux Mondes* for April, 1874,† on "the progress of Education in Russia," thus accounts for this wonderful change in the educational policy of Russia. He says :—

"Russia, during the last twenty years has shown how a great state may rise from a defeat. Like Prussia, after the battle of Jena, it has profited from a bitter lesson. While the country was recovering from the shock of defeat, the time was not spent in sluggishness and fruitless experiments : it has, on the contrary, been a period of radical reform and complete re-organization. In 1854, Russia had really not been conquered, as, after two years consumed in gigantic exertions, the allies had only succeeded in taking one single city, situated on the confines of the empire. The frontiers had scarcely been touched, for the enemy never

* It, however, as a substitute for the Ontario plan, has as Commissioners, Messrs. Feenault & Co., who act as agents for the sale of articles in the Museum or Depository. This answers the same purpose.

† For this translation, which I have greatly shortened, I am indebted to Circular No. 3, of the American Bureau of Education, issued by General Eaton in 1875.

thought of leading his armies into the heart of the country. The country, nevertheless, was exhausted, and made peace because it had not the strength to continue the war any longer. The Russian government was fully aware of the causes of its weakness. These causes were three in number: First, the lack of rapid means of communication; secondly, the insufficient development of the productive powers of the country; and, thirdly, the want of enlightenment among the masses of the people. To remove these various causes of weakness has been the object which Russia has pursued with indefatigable perseverance and in an intelligent manner.

"The beginning was made by tracing a net-work of railroads, which extends every year in all directions. Next, the serfs were emancipated, a reform of far-reaching consequences which must change the whole economical situation of the empire, since it has awakened in the population that desire for progress, which always accompanies freedom.

"For some years the Government has been earnestly engaged in the enormous work of extending education to all classes of society, both in the rural districts and in the towns and cities. This, in my opinion, is the most important matter. For it is the application of scientific knowledge which makes labour productive.

"Open as many schools in Russia as in America, and the power of that immense empire will surpass that of any other country in the world."

BRIEF SKETCH OF EDUCATION IN RUSSIA.

"The first attempts to educate the people date from the reign of Peter the Great. In Holland, where even at that time there were many and good schools, the imperial reformer saw the marvellous results produced by them."

"In 1714 he established 'compulsory schools of arithmetic' for the higher classes."

"In 1715 and 1719 stricter regulations were published, and attendance at school was made compulsory for all except the nobility. These excellent measures, far from meeting with favour, were violently opposed. The City Councils of several cities sent petitions demanding the suppression of these schools as being dangerous institutions.

"In 1744, it was ascertained that not a single pupil from the middle class attended these schools, and, after special schools had been founded for the clergy and the nobility, they were completely deserted.

"In 1775, Catharine II., influenced by the philosophical ideas of the eighteenth century, ordered the establishment of schools in towns and villages. She wished that the school fee should be as small as possible, in order not to deter the poorer classes from sending their children to school; but this order unfortunately remained a dead letter, for everything was wanting; teachers, school houses, books, money. Since that time, several other efforts were made, but invariably without any result. Considerable sums would have been required to make a beginning, and the Government contented itself with passing laws.

"In 1782, a committee, with M. Zavadorsky as chairman, proposed to establish two kinds of schools, one with a four years' course for the higher classes, and another with a two years' course for the common people.

"In 1786, certificates of ability were required of all persons—at least in the cities—who opened a school.

"In 1803, the High Schools were changed to gymnasia, organized on the same plan as the institutions of that name in Germany.

"In 1804 a new effort was made to establish schools on the estates of the Emperor and the nobility; but, owing to want of money, nothing serious was done.

"Finally the clergy felt touched in their honour, and decided to show what the zeal and devotion of the servants of religion may accomplish. In 1806 it was stated, that in the district of Novgorod, there were one hundred and six schools kept by officiating ministers. The report of Prince Gagarin, who mentions this fact, adds that, 'unfortunately, two years later they had all disappeared.'

"After serfdom had been abolished in 1861, the Emperor Alexander II, saw that the indispensable consequence of this great reform must be a thorough reorganization of public instruction. In 1861 a Committee was appointed to draw up the plan of the law.

"In 1862, M. Taneef submitted to the Emperor a 'general plan for the organization of

popular education,' which contained some very excellent points. The result was the General Regulations of 1864, which are still in force."

SECONDARY EDUCATION IN RUSSIA.

"Secondary education in Russia is organized almost like that of Germany, especially since the promulgation of the law of 1871, which regulates the studies in the gymasia, and that of 1872, regarding the real schools. The gymnasium's course now embraces Greek, Latin, German, and French, besides the scientific branches. The Russian real schools are very excellent institutions, and every way suited to the wants of Russia. Without neglecting general studies like history, they devote nearly all their efforts to mathematics, drawing, chemistry, modern languages, and all those studies which tend to aid industrial activity. They enable young men to acquire a very complete and very superior education, without troubling them with the study of the ancient classics (humanitarian studies), which frequently drive them into a career leading to nothing.

THE RUSSIAN UNIVERSITIES.

"Russia has eight, organized on the German plan. These are:—St. Petersburg, Moscow, Charkof, Kasan, Kief, Odessa, Dorpat, and Warsaw. The total number of Professors was 512, and of Students, 3,779, of whom 3,247, or almost one-half, or 47 per cent. studied law; medicine was studied by 1,922, or 27 per cent. The number of students studying at the public expense, is very considerable; 1,430 are educated entirely free, 2,208 have only to pay half, and 1,732 receive occasional subsidies; thus 80 per cent are not able to bear their own expenses.

SUMS EXPENDED FOR EDUCATIONAL PURPOSES BY THE VARIOUS RUSSIAN MINISTRIES IN 1872-73.

	Roubles.
Schools under the Holy Synod	1,539,225 = \$1,090,284 37
Ministry of Public Instruction	13,168,125 = 9,327,421 87
Ministry of War	6,026,356 = 4,268,668 83
Ministry of the Navy	449,922 = 318,744 33
Ministry of Finance	3,513,659 = 2,488,841 79
Ministry of Domains	785,692 = 556,531 83
Ministry of the Interior	338,477 = 239,744 54
Ministry of Public Works	159,815 = 113,202 29
Ministry of Justice	402,824 = 285,335 33
Ministry of Caucasia	508,093 = 359,899 20
Ministry of Foreign Affairs	12,800 = 9,066 66
Schools under the direction of the Empress Maria...	1,551,494 = 1,098,974 91
Total.....	28,455,482 = \$20,156,775 95

"Large sums are also annually expended for educational purposes by cities, town, and private individuals.

"*Higher Schools*.—Universities, 8, (not including the one in Finland), with 543 professors and 6,115 students, lyceums 5, with about 600 students.

"*Intermediate Schools*.—Gymnasias, 122, with 39,270 scholars; progymnasias 33, with 5,014 scholars; real schools, 7,* with 1,752 scholars.

"*Lower Schools*.—District schools, 423, with 29,709 scholars; popular schools, 21,666 with 875,445 scholars.

"*Special Schools*.—Normal schools and teachers' seminaries, 54, with 2,552 students; higher theological schools 4, with 118 professors and 446 students; intermediate theological schools, 51, with 789 professors and 13,103 students; lower theological schools 187, with 1,375 professors and 26,671 students; higher military schools 7, with 1,416

students ; intermediate military schools 25, with 6,330 students ; lower military schools, 31, with 6,863 students ; naval schools 7, with 1,109 students ; agricultural schools, higher, 3, with 293 students ; agricultural schools, lower, 16, with 1,025 students ; higher technical schools 6, with 2,666 students ; lower technical schools 12 ; schools of art and drawing 5 ; schools of music and the drama 3 ; business colleges 4 ; law schools 1, with 320 students, each (each university has a faculty of law) ; schools of philology 3.

"Schools exclusively for Females.—Institutes 28, with 5,453 scholars ; gymnasia and progymnasia 105, with 23,854 scholars. No statistics can be obtained regarding the private schools."

General Eaton, in his report just issued, gives the following statistics in regard to the state of education in Russia at present :—Number of common schools in the European provinces, 20,376 ; number of pupils, 839,565, viz., 670,186 boys and 169,379 girls. Total number of children between the ages of 6 and 14 years, 12,213,588, viz., 5,803,656 boys, and 6,409,902 girls. Of these only 6 per cent. attended School. Number of schools in Siberia, 2,392 ; number of pupils, 102,922 (Allgemeine Schulzeitung, 1876, No. 16.)

IV.—THE EDUCATIONAL EXHIBIT OF THE SWISS CONFEDERATION.

Switzerland has long been noted for the completeness and thoroughness of her cantonal system of education as a whole. There is, of course, a great diversity in the state and progress of the educational system of the several cantons ; but taken together the Confederation has maintained a high position in Europe as an educating country.

Owing to the independent character of the cantonal system of Switzerland, the educational exhibit from the Republic, though extensive, was not as systematic as that of other countries. The Boards of Education of nine of the cantons represented at Philadelphia, necessarily sent duplicates of some kinds of illustrations. However, the display was rich ; the various school appliances were of an excellent description—such as relief maps, globes, charts, plans, and pictures. In models and object lessons the collection embraced (as in the Russian exhibit) very neatly mounted portions of birds, fishes, flowers, plants, and leaves. There were also cases of fossils, minerals, shells, woods, grains, seeds, etc. The Board of Education sent a good collection of school laws, regulations, reports, textbooks, plans and photographs of school-houses. A number of private schools and individuals sent contributions of various kinds. The "inductive principle" in education was illustrated by Franz Bachmann, of Lucerne, and the "constructive method for children of 5-12 years," by F. Beust, of Hottingen. M. Beust had also a collection of maps, textbooks, and apparatus. Froebel's Kindergarten principle was fully illustrated (with specimens of pupils' work) by J. Willaner, of St. Gall. F. Ganz, of Zurich, had an interesting collection of "photographs of microscopic preparations for instruction in natural science." There were also a variety of maps and atlases, drawing, copy and music books ; pupils' work in modelling, books on teaching and school architecture, school furniture, etc. There were interesting exhibits from the Swiss Orphan Asylum for girls, the blind, deaf and dumb, and other institutions, literary societies, etc. Some very good models of bridges, arches, wheels, steeples, roofs, and stairs, models of leaves and flowers, architectural drawings, etc., were exhibited by the "voluntary school for apprentices" at St. Gall.

* In 1873 twenty-three new real schools were opened.

STATE OF EDUCATION IN SWITZERLAND.

In speaking of the character of the Swiss exhibit at Vienna in 1873, Hon. J. W. Hoyt, says : (and the same may be said of the exhibit at Philadelphia.)

"The distinguishing feature of the Swiss educational exhibition was the excellent quality of the text books shown; the extraordinary quality of the maps, charts and reliefs in plaster and pasteboard, for instruction in geography, and the numerous illustrations it afforded of the zeal and enthusiasm of teachers and pupils, especially in the scientific departments of study. The purpose is that each school shall have its scientific collections, and that each pupil shall also for himself make collections and observations as he goes on with his studies. In this way each student incidentally becomes a naturalist or physicist according to the bent of his mind, and the whole body of schools so many recruiting centres for the several scientific corps of the Republic."

Although a small and rugged country, yet Switzerland has long been noted as among the most enterprising and progressive in matters of public education. She has made ample provision for her schools, and requires every child between the ages of five and eight years to attend them, unless good reason for non-attendance be shown. Her schools are free.

The following is the latest statistical information in regard to education in Switzerland, taken from General Eaton's report for 1875 :

Switzerland, confederate republic ; *area*, 15,233 square miles ; population, 2,669,147, (in 1870) ; capital, Berne, population, 36,000. Date of Report, July, 1875.

Elementary Education.—Number of schools, 5,088 ; number of pupils, 411,760, viz., 205,228 boys, and 206,532 girls ; number of teachers, 7,474, viz., 5,750 males, and 1,724 females. There are besides 4,393 special female teachers for needlework, &c.

School Libraries.—Number of libraries, 1,216 ; number of volumes, 327,297.

Normal Schools.—Number of Normal Schools, 26 ; number of teachers, 182 ; number of students, 1,505.

Charities.—(From report of 1876.) Orphan Asylums, number 33 ; number of inmates, 1,606 ; institutions for destitute children, number 35 ; number of inmates, 1,209 ; Deaf-mute Institutes, number 9 ; number of inmates, 328 ; institutions for the blind, and for the insane, number, 9 ; number of inmates, 463.

Secondary Education.—No report.

Superior Education.—UNIVERSITY OF BASLE.—Number of Professors, 67 ; number of students, 1875-1876, 254. University of Berne : number of Professors, 70 ; number of students 345, (1875-1876). University of Zurich : number of Professors, 77 ; number of students, 364, (1875-76.) Veterinary Academy at Berne : Professors, 7 ; students, 17.—*Universitäts Kalender*. (1875-76.)

V.—THE EDUCATIONAL EXHIBIT OF THE KINGDOM OF BELGIUM.

Next to the Swedish School-house and its appointments, nothing interested educationists visiting the Exhibition more than a neat model of a Belgian School house in the main building. While other countries (our own among the rest), gave specimens of their schools and appliances in detail, Belgium and Sweden gave us examples of their schools and appliances in combination. They did so in a manner too, which gave a vividness to the impression left on the mind of the visitor as to what the school-house of the country and its appointments actually were, or ought to be. They were pedagogical object lessons on a large and comprehensive scale, which could not fail to impress the beholder, either with a sense of fitness and adaptation to the object intended, or, if in a critical mood, with some deficiency in the ideal standard of what, in the visitor's mind, a school-house ought to be. Insensibly the visitor, if educationally interested, would thus subject the whole school and its appliances to a professional scrutiny and criticism. He would naturally compare it with schools in his own country to see if it were superior or inferior to them. In this sense the Swedish and Belgian

exhibits did good service æsthetically and practically. For no one could look at the neat and elegant appearance of the Swedish school-house in all its details, without being impressed with its beauty and finish, or at the completeness of the internal arrangement of the Belgian school-house without being struck with the care and forethought with which the appliances of the two school-rooms (each *sui generis*), had been provided.

There was one excellent feature about the Belgian exhibit. It presented an example of the practical and systematic mode adopted by the Government of carrying out the official plans and instructions of the Department of Education throughout Belgium.*

Upon inquiring I found that this school-house was a sample of the kind of school-houses, and their fittings, apparatus, text books, etc., prescribed by the Education Department for use all over the kingdom. The peculiarity of the school-house and its fittings were:

1. It was built on a systematic plan, applicable to schools of various sizes and kinds.
2. The system of ventilation adopted was one which had been thoroughly tested.†
3. The arrangements in the halls, vestibule, lavatory, etc., were excellent, and the plan of seating was convenient.
4. The collection of object lessons, text-books, maps, apparatus, school museum, appeared to be sufficient for the requirements of the school.‡

*Copies of these official regulations and instructions were distributed to visitors at the Exhibition under the title of "Construction et Ameublement de Batiments D'Ecole." These were revised in 1874, as intimated in the pamphlet, viz: "Le 27 Novembre, 1874, le Gouvernement, de l'avis conforme de la commission centrale de l'instruction primaire et du conseil supérieur d'hygiène, a revisé le programme relatif aux constructions et ameublements des maisons d'école." To the pamphlet are attached plans of school-house and gymnasiums.

† The Belgian system of school-house ventilation is thus described by the Honourable E. A. Apgar, State Superintendent of New Jersey, in his report just published:—

The system of ventilation exhibited [in the Belgian school-house] is worthy of particular attention. There is a three-fold arrangement for the supply of fresh air. (1). The surbase is set off from the wall about four inches and covered with perforated zinc. This forms an open space completely around the room. This space communicates with the outside by several openings, each about eight inches in diameter. These communications may be closed or left open at the will of the teacher. The air enters these openings, but instead of passing directly into the room it strikes the surbase and is reflected upwards into the room through the perforated zinc. (2). The lawn sash of the window is intended to remain closed, the upper sash is hung on hinges on its lower edge, and so arranged that it can be opened by drawing the upper edge within the room. The angle it can make to the vertical wall is thirty degrees. The air in entering this opening comes in contact with this inclined sash and is reflected upward against the ceiling and down into the room. Thus the force of the current is spent before it reaches the children. (3). The stove, instead of depending upon the air in the room for the oxygen it needs to support combustion receives its supply from out of doors, through an opening or passage-way under the floor. Thus there is an abundant supply of fresh air into the room and the children are all secure from draught. There is a double arrangement for the exit of foul air: (1). There is a register in the floor in each corner of the room, from each of which there is a passage way or flue under the floor. These flues come together and unite under the stove, and there communicate with a flue in the stove that leads out of doors through the roof. This passage way for the foul air is along side the hot air flue, it therefore becomes heated and draught is produced, which tends to draw the foul air, which finds its place near the floor, from the room. (2). A passage way around the edge of the ceiling is made with perforated zinc similar to that around the room below. This communicates with the outside by pipes, one at each corner. These pipes are about eight inches in diameter and are capped with an elbow and vane so arranged that the mouth is always turned in the direction the wind is blowing. This has the effect of causing a draught also, and the foul air that finds its place near the ceiling is drawn from the room."

‡ As in the Russian and Swiss collections, the object lessons, and various articles for illustration-teaching in the museum, included among other things, specimens of plants, woods, seeds, grain, minerals, shells, fossil parts of animals, birds, insect-, etc.

5. The arrangements for gymnastic and out-door exercises of the pupils were ample and varied.

Altogether the details of the whole school-house and its appliances were most complete and satisfactory.

BRIEF SKETCH OF EDUCATION IN BELGIUM.

As to the present condition of Education in Belgium, I am indebted to an article on the subject, published by General Eaton in his "Circular of Information," No. 3, 1875.

"BELGIUM. — Constitutional monarchy, (kingdom). Area, 11,313 square miles; population, 5,921,336. Capital, Brussels; population, 314,077. Minister of Public Instruction, the Minister of the Interior, ch. Delecom.

1.—PRIMARY INSTRUCTION.

"The basis of the present system of primary instruction is the law of September 23, 1842.

"The inspection of primary schools, as regards instruction and administration, is in the hands of the communal authorities and of inspectors, and, as regards religion and morals, in the hands of men appointed by the heads of the different denominations.

"There is in every province a provincial inspector of primary instruction appointed by the King. He inspects at least once a year all the schools of the province. He communicates with the cantonal inspectors, who are subordinate to him.

"The provinces are divided into districts, each composed of one or more cantons, each having its inspector, who is appointed for three years by the Government on the recommendation of the Provincial Government. The cantonal inspector communicates with the communal administration, visits the schools of his districts at least twice a year, and keeps a diary of his inspections, which must at any time be open to the provincial inspector. The cantonal inspector holds, at least once a quarter, a conference of all the teachers of his district, where educational methods, text-books, &c., are discussed. Once a year these conferences are presided over by the provincial inspector.

"The provincial inspectors assemble once a year under the presidency of the Minister of the Interior. This Assembly is called the Central Committee of Instruction. Each inspector presents the report of his province, and the assembly discusses new text-books, methods, &c.

"PRIMARY SCHOOLS.—The law provides that every commune must support at least one primary school, where gratuitous instruction to all those children belonging to the commune whose parents cannot afford to pay anything, is given in religion, reading, writing, elements of French, Flemish, or German language (according to the different localities), arithmetic, and legal system of weights and measures.

"SCHOOLS FOR ADULTS.—By the law of September 1st, 1866, modified by later laws, the communal councils are obliged to establish special schools for adults. Those schools are to be kept in the primary school-house, and by the primary school teacher, and are subject to the same inspection as the primary schools.

"NORMAL SCHOOLS.—By royal decrees of April 10, and November 20, 1843, two State Normal Schools have been established, one at Liege for the Flemish portion of the population, and one at Nivelles for the Walloon portion.

"MISCELLANEOUS.—Besides the primary schools enumerated above, there are a number of such schools under the ministers of justice viz: Prison-schools, hospital-schools, and almshouse schools.

"PRIMARY SCHOOLS UNDER THE MINISTER OF WAR.—Every regiment in the Belgian army has its school, where illiterates can learn at least, reading, writing, and arithmetic.

2.—INTERMEDIATE INSTRUCTION.

"The basis of intermediate instruction is the organic law of June 1, 1850, modified by succeeding laws.

"The intermediate schools are either government schools, those of a higher grade being called royal atheneums, and those of a lower grade, intermediate schools, (*écoles moyennes*.) The provincial or commercial intermediate schools of the higher grade are called colleges (*collèges*), and those of the lower grade intermediate schools.

"NORMAL SCHOOLS FOR INTERMEDIATE INSTRUCTION.—There are four normal schools for intermediate instruction, viz: two normal courses—one normal school of humanities, and one normal school of sciences.

3.—SUPERIOR INSTRUCTION.

"There are in Belgium four universities, two supported by the government and two free universities; the former at Ghent and Liège, and the latter at Brussels and Louvain.

"Each university has four faculties, viz: of Philosophy and Literature, of Mathematical and Natural Sciences, of Law and Medicine.

4.—SPECIAL INSTRUCTION.

"INDUSTRIAL INSTRUCTION.—There are a number of special schools connected with the State Universities, as the School of Civil Engineering, connected with the University of Ghent, established 1838.

"INDUSTRIAL SCHOOLS AND WORKSHOPS.—The number of Industrial Schools is 26; they are almost exclusively commercial institutions, receiving aid from the Government, which has the general superintendence and the right of inspection,

"An institution peculiar to Belgium are the workshops for learning trades, (*ateliers d'apprentissage*.) The origin of these workshops was the hopeless condition of the weavers in Flanders about 1830, who were suffering much on account of the introduction of machinery.

"AGRICULTURAL INSTRUCTION.—There is one State Agricultural School at Gembloux, founded in 1860. This school is located in large and well-arranged buildings, and has a model farm and garden, and in the neighbourhood are large distilleries, breweries, and sugar manufactories, thus affording the students an opportunity of becoming acquainted with these branches of industry.

"ART INSTRUCTION.—There are two academies of the fine arts, one at Brussels and the other at Antwerp, both under the direction of the Government.

"Lower art instruction is given in drawing-schools, chiefly maintained by the communal or provincial authorities, at present numbering upwards of fifty, where gratuitous instruction in drawing and kindred branches is given.

"There are two Royal Conservatories of Music at Brussels and at Liege, managed by Committees appointed by the King, under the supervision of the Ministry of the Interior.

"MILITARY INSTRUCTION.—There are three institutions for military instruction, all under the supervision of the Ministry of War, viz., the School of War, (*école de guerre*), the Military School, and the School for non-commissioned officers of the infantry and cavalry, the first intended for the education of staff officers, the second for the education of commissioned officers of the infantry, cavalry, artillery, and engineers, and the last for the education of non-commissioned officers.

"NAUTICAL INSTRUCTION.—There are two Schools of Navigation, viz., at Antwerp and Ostend.

VI.—THE EDUCATIONAL EXHIBIT OF THE EMPIRE OF JAPAN.

Japan, by reason of her former national isolation, and from other causes, was unable to take any part in the great exhibition at Paris, in 1867. In 1873, however, she contributed to the Vienna Exposition "varieties of her natural products as well as art specimens ;

minerals, ores, vegetables, animals and birds were sent, together with quantities of Japanese ware, made up in foreign style and shape, in hopes of tempting purchases, by combining occidental ideas of utility with oriental ideas of artistic beauty. At that exhibition Japan did herself great credit, eliciting high commendation from the European press, both for the richness and novelty of her collections, and for the dignity with which the Commissioners conducted themselves.*

The same remarks pre-eminently hold good in regard both to the Japanese display at Philadelphia, and the conduct and ability of her Commissioners. The display was of so extensive and superior a character as to surprise every one. It called forth sincere congratulation on the part of the friends of education generally.

For reasons which I shall presently explain, Japan was unable to make any educational display at Vienna. She, however, quite made up for the omission there, by the variety and practical character of her educational exhibit at Philadelphia.

It may be desirable here briefly to take a glance at the causes which have brought about so desirable a change, and have led to so extensive a revival of Educational zeal in Japan, the gratifying fruits of which were seen at Philadelphia. The detailed narrative on the subject is of great interest; and it embodies in brief space much historical and general information. I have condensed the following summary of it from an official account of the "History of Japanese Education, prepared for the Philadelphia International Exhibition, 1876, by the Japanese Department of Education." The writer, David Murray, Esq., LL.D., "Foreign Superintendent of Education in Japan," says:

"The early history of education and literature in Japan, as in all other countries, is obscure and uncertain. . . .

"In the theory of Japanese government, the final and absolute authority vested in a sovereign ruler called the *Mikado*.† An unbroken line of these sovereigns is traced back in Japanese history to about 660, B.C., penal laws, imperial edicts, and administrative regulations, were all supposed to emanate from the sovereign. From about the twelfth century, however, owing to internal and external commotions, the actual duty of representing tumults and executing justice upon rebellious subjects was intrusted to a generalissimo of the imperial forces known as the '*Shogun*.' At the beginning of the seventeenth century this office fell into the hand of a member of the Tokugawa family, in which it subsequently became hereditary and so continued down to 1867, when the incumbent resigned the office into the hands of the Mikado. During this period of the Tokugawa power, lasting more than two hundred and fifty years, the entire executive authority of the government was exercised by the Shogun. He did not, however, assume independent sovereign power, but continued to act nominally as the representative and servant of the Mikado.

"It was during this period that the feudal system attained its highest development in Japan. The ancient territorial nobles were reduced to subjection, and became vassal princes under the Shogun. New and conquered provinces were parcelled out to the connections of the Shogun's family; so that, at the time of the making of the foreign treaties, there were about two hundred of these princes, who, under the name of *daimios*, exercised in their provinces local authority, and yielded to the Shogun, as their superior lord, feudal obedience.

"INTRODUCTION OF LEARNING INTO JAPAN.—The first steps in education in the empire were taken before the period of the Shogunate. China and Corea were in this particular, as in many others, the source from which they derived their first seed of learning. As early as A.D. 300, there are accounts of Corean and Chinese scholars being brought over to teach a knowledge of the Chinese alphabet and Chinese books to the Japanese imperial court. It is now generally conceded that, previous to the introduction of

* "Japan among the Nations." *International Review* for January and February, 1877, pages 63-64.

† In the early treaties and diplomatic correspondence he is, under a misconception, called *Tycoon*.

Chinese, no alphabetical writing existed in Japan. The alphabet of forty-eight characters, known as the Japanese *iro ha*, which is used in the simpler styles of writing, is now considered to have been the modification and simplification of certain familiar Chinese characters

"The first teachers employed were brought over from Corea and China; but subsequently native scholars who had been educated in China were able to take their places, and gradually there grew up in connection with the Imperial Government a system of education which differed widely from its prototype, but was so far fitted to the wants of the Japanese Empire as to secure not only its stability through many centuries, but a high degree of culture and civilization.

"The primary object aimed at in the education of this period, which may be termed the "middle-ages" of Japan, was not the diffusion of knowledge among all classes of people. This is a conception of recent origin even in Western countries. The object sought was, by means of special training, to prepare men to enter the service of the Government. For this purpose, an institution which we may call a university, was established at the capital of the empire. It had branches also in the various principal provinces, which were tributary to the central institution.

"THE GREAT SCHOOLS OF OLD JAPAN.—The founder of the Tokugawa dynasty of Shoguns was a liberal patron of learning, and did much to encourage the organization of schools and libraries. He established at his capital in Yeddo, a College which attained great celebrity, and was attended by more than three thousand pupils. It was dedicated to the honour of the Chinese philosopher, Confucius.

"Other institutions of a like character were founded by several of the more powerful daimios in their provinces.

"These institutions were, however, designed solely for the use of the "Summai" class, *i.e.*, those who held feudal relations as military retainers to their masters. The children of the common people were not provided for in government schools. The education they received was at private schools, or by private teachers.

"The women also were not educated at the great national schools, but were taught in private schools, or by tutors employed specially for their instruction. The education of females was less extensive and thorough than that designed for boys. They learned to read books in the easier styles, but were not generally taught the Chinese classical authors. They could write and play upon some musical instruments, and were taught female accomplishments in the line of sewing, embroidery, etc. There were, however, some notable exceptions to this limited female education. Female scholars of great celebrity appeared from time to time, and not a few of the most famous names in literature are those of females.

"JAPANESE MODERN EDUCATION.—The first seeds of a reformation in the educational system of Japan were sown while the Dutch held the monopoly of trade at Nagasaki. A considerable number of the Japanese learned to speak and to read the Dutch language; and, although the Government discountenanced the introduction of foreign ideas and foreign books, yet both of them slowly percolated into the empire.

"The influence of the Dutch learning is plainly traceable, especially in the direction of medical science. At the time of the advent of Commodore Perry, in 1853, a very perceptible advance had been made out of the old Chinese medical system into the more rational one of Europe.

"But it is only since the country has been open by treaty to foreign trade and foreign intercourse, that the influence of Western learning has really begun to affect the national life. The conflicts in which the country was plunged over the question of foreign intercourse, led them to investigate for themselves, the points in which Western civilization was superior to their own. They could not resist the arguments which were supplied to them in the form of powerful ships with their destructive armaments, the knowledge of military and naval science displayed by the strangers, the many strange and useful articles of manufacture which they brought, and the superior knowledge they displayed in regard to geography, astronomy, navigation and medicine.

"They made early efforts, therefore, to remedy their deficiencies in these particulars. They engaged from France a commission of military officers to instruct them in the modes of warfare in Europe; they purchased vessels, and engaged skilful persons to teach them

how to manage them; they bought foreign arms and ammunition for the use of their re-organized troops; they took every opportunity to study the Dutch, English and French languages, so that they might be able to obtain from foreign books the secrets of that power which they could not fail to acknowledge.

"But the most important step was taken when they resolved to send to foreign countries, young men to be educated in the sciences and arts of the West. As early as 1861 some of their youths were sent to Holland, and afterwards to England and America. Strangely enough, some of the first to be sent out, were from provinces whose daimios had been the most bitter opponents to foreign intercourse. They were the first to see that, if they were even to compete with the power of Western nations, they must be able to turn against them the weapons drawn from their own sciences and arts. The education of Japanese young men in foreign countries, although of so recent a date, has already been productive of the most important results. Many of the most responsible positions in the Government are now filled up by the men who received their education, and acquired their knowledge of foreign affairs in Europe and America. These men, and others equally enlightened and progressive, saw the necessity of establishing a system of education which should give to their country a knowledge of the languages and sciences of those nations with which in the future they were to be so intimately associated.

"ORIGIN OF THE JAPANESE DEPARTMENT OF EDUCATION.—Hence, after the revolution in the Government by which the Shogunate was abolished, and the Mikado resumed his ancient authority, one of the most important reforms inaugurated was the establishment of a department of public instruction. This took place in 1871, and all matters relating to schools, colleges, libraries, and other educational institutions, were intrusted to this department. The system of education which now prevails, and which is fast providing for the nation a system of universal education, is the work which it has undertaken.

"Under the stimulus of foreign intercourse, and the strong desire to learn foreign languages, there had already sprung up in various cities, schools designed to satisfy this want. As early as 1856, a school for teaching foreign languages was begun in the City of Yeddo, under government auspices. Under native and foreign teachers, several foreign languages were taught, and the elements of a western education were supplied. It was out of this nucleus that the present large and flourishing group of institutions for foreign learning in the City of Yeddo originated. The newly organized Department of Education wisely resolved to utilize all such educational material, and has made it the basis for the more systematic and complete set of institutions which it has established.

"SYSTEM OF EDUCATION IN JAPAN.—The responsible head of the empire is the Mikado, or Emperor, in whose name and authority all laws and edicts are issued. The details of administration, however, are intrusted to various departments, each being charged with its appropriate work.

"JAPANESE LIBRARIES AND MUSEUMS.—From the time of the recent transformation of the Government, the collection of books has become necessary for the use of the departments, and the institutions of learning. The first public library, however, under the new régime, has been opened in the capital by the Department of Education. It was first organized in 1872, and then contained only Japanese and Chinese books. In 1875, it was reorganized on a larger basis, and now contains a large collection of valuable foreign as well as native literature.

"In 1873, a museum was organized, intended to exhibit the following classes of collections: Industrial specimens; specimens of Art, and Art applied to Industry; specimens of Scientific and Educational Apparatus; specimens in Natural History, Agriculture and Ethnology. This museum grew out of the collection of articles made for the Vienna Exposition, and has gradually increased, until it is now a collection of rare value and interest.

"Another museum has been more recently organized by the Department of Education, for the benefit chiefly of the educational institutions located in Tokio. It is, however, also intended to be opened for the public benefit. It is less a general museum than a series of collections in the various subjects important in an educational course.

It was from this educational museum, and from the school apparatus manufactory connected with the "Department of Arts and Manufactures of the University of Tokio,"

that the extensive collection of Japanese school apparatus exhibited at Philadelphia was obtained.

There was something very peculiar and yet very strikingly suggestive in this collection. Many of the articles exhibited combined, with more or less variation, some of the best features of the school apparatus and other appliances in use in our schools, combined with the most useful and practical products of Eastern scholastic skill. Each article was, moreover, presented in a Japanese dress and finish, —with here and there a quaint figure, or ornament, or symbol, to distinguish it as a product of Japanese skill; with also what appeared to English eyes hieroglyphical characters inscribed upon it, descriptive of the name of the article, or illustrative of the purpose it was intended to serve.

In this way the visitor got a practical example of the Japanese idea of an air pump, a hydraulic press, and a steam engine, etc.*

Among the most striking things in the Japanese collection, was an admirable series of coloured "charts," as object lesson sheets, for teaching natural history, language, arithmetic, gymnastics, and for familiarizing children with the names and uses of every-day objects. In kindergarten material, there were forty-one different articles of Japanese manufacture. The "raised pictures" were very good. They represented the plucking of tea leaves; a plum tree with orioles; a farm house and accessories; an elephant; a battle, etc. The "lacquered pictures" were intensely Japanese. They represented a Chinese General; a falcon; a "sago-palm," with frogs, etc. There were also quaint-looking "painted pictures" of men, women, flowers, birds, grasses, trees, warriors, farm-house, etc., foot-ball, musical dance, besides these, there were others illustrative of medical science, of the mode of refining gold and silver at the Sado mines. Probably, however, among the articles which attracted most interest and attention, was the Japanese abacus, or arithmetical "counting-frame." An anecdote, illustrative of its use and value, is thus given by the correspondent at the Exhibition, of the *New York Tribune* :—

"There is an abacus or counting instrument of movable wooden buttons on wires, differing little in appearance from that in use in American or European kindergartens. The Japanese, however, use it in their daily life. The Commissioner told me that all the accounts in their office were kept by it, and that 'although he had of late years studied arithmetic, and even the higher mathematics, by aid of the written figures, such as we use, he still preferred the abacus (or in Japanese *soro-ban*) as a quicker and simpler and more accurate method.' A doubting Bostonian who was present, challenged him to a trial of the two systems. Somebody called off large sums running up to billions, which the American wrote down and added in the usual way, while the swift, nervous fingers of the Commissioner flew over the wires. There was something very hearty and cordial in the way in which the eager crowd took part with the foreigner, rejoicing when, as a bystander said, he won by several lengths. Difficult sums in the first four rules resulted in victory for the *soro-ban*; and I believe it can be used in any mathematical calculation."

The whole educational collection from Japan, consisting of nearly 1,000 objects, was thus classified into fourteen groups, in the official catalogue, published at Philadelphia by the Vice-Minister of Education.

- "1. Japanese Educational History, 3 books.
- "2. Educational Notifications and Laws, 4 books.
- "3. Educational Reports, 5 books.
- "4. Regulations of Government Schools, 6 books.
- "5. Charts, maps, books and apparatus for schools, containing the following:

Five charts for teaching Language; Six charts for teaching Arithmetic; Four charts of object lessons and Gymnastics; Five species of Writing-books; Elementary Reading and Spelling Books; Text Books on elementary and general Geography; Text Books on elementary Arithmetic; Outline of the History of Japan; Outline of General History; Drawing Books; Outline maps, and map of world; Five charts on Natural History; Balloon Globe; Drawing Slates; varieties of the Japanese Counting frame; varieties of

* A large variety of most interesting specimens of Japanese school apparatus and appliances were purchased at Philadelphia for the Ontario Educational Museum. The Japanese vice-minister also purchased a great many articles from the Ontario Exhibit. A list of these exchanges will be given near the close of this report.

School Slates; Lacquered Slates; School desks and chairs. School apparatus, manufactured at the Department of Arts and Manufactures of the University of Tokio, viz.: Polariscopes, hydraulic ram, elliptical compass, glass-cutting machine, Newton's plates, plane mirrors, model of steam-engine, pyrometer, conjugate mirrors, sonometer, tuning-fork, force-pump, suction-pump, Magdeburg hemispheres, air-pumps, Archimedes' screw, reaction wheel, hydraulic press, Cartesian diver, inclined plane, pulleys, wheel and axle, lever, concave mirror, and convex mirror, double cane and inclined plane, rocking-toy, collision-balls, camera-obscura, centrifugal machine, adhesion plates, parallelogram of forces, gyroscope, orrery, wedge, accompanied by a list with prices.

"6. Examination Papers of Government Schools: 6 books.

"7. Kindergarten material: The collection under this head embraces forty-one different articles. They consist of boxes of letters, cards, puzzles, etc.; of pictures, play-cards, easy-readers, simple games, shadow-pictures, hand-balls, and children's toys, together with four boxes of kindergarten gifts.

"8. Library, museum and botanical gardens, 6 photographs, maps, &c.

"9. Designs and photographs of Schools: 16 photographs, plans, models, etc.

"10. Books, maps, etc., 83, viz.: Dictionaries, histories, maps, laws, medical books; ancient and modern poetry and prose, Japanese and Chinese styles of writing; books of music; biographies, natural history and agriculture; almanacs, old model books of writing and arithmetic; lectures and treatise; catalogues of new books.

"11. Newspapers, 19 kinds, etc.

"12. Instruments, apparatus and literary material, 48, viz.: Ancient and modern medical instruments and medicines; measuring instruments, globes, ancient writing instruments, arithmetical counting frames, pencils and brushes, paper penholders, ink, books for accounts and memoranda.

"13. Painting and printing instruments, 43, viz.: Raised lacquered and painted pictures, instruments for drawing, painting and engraving.

"14. Photographs of various places and buildings.

PRESENT STATE OF EDUCATION IN JAPAN.

From the official report of the "History of Education in Japan," to which we have already referred, we gather the following particulars as to the organization and progress of a natural system of Education in the empire. The information has been greatly condensed from the official report:

"*Organization of the Japanese Department of Education.*—The Department of Education is administered by a minister and other officers. At its organization the head of the Department was Oki, a man of great energy and judgment. He was subsequently transferred to the head of the Department of Justice. At the present time the head-officer is Tanaka Fujimaro, the Vice-Minister, who had charge of the Japanese Educational Exhibit at Philadelphia.

"*The Bureau of Superintendence* is charged with the duty of inspecting the schools of the empire, and with the duty of general superintendence.....

"*The Bureau of School Affairs* has charge of the business of the schools with the department, and with the appointment and designation of officers and teachers.....

"*The Bureau of Reports* collects, arranges, and publishes statistics of education. It gathers information concerning education in foreign countries. It publishes a semi-monthly report containing information for teachers and those interested in Education..... The compilation and preparation of school-books are in its charge.....

"*The Bureau of Finance* is charged with the care of all financial transactions of the department, with the payment of moneys to the government schools, and the distribution of the annual appropriations to the local school bureaus.....

"The government schools are each managed by a director, who is appointed by the Department of Education, and who is generally one of its officers. The director is responsible for the general conduct of the institution, but in all important matters is required to consult the department.

"In each of the local governments there are officers charged with the care of educational affairs, who are required to look after the organization and maintenance of the schools in the different districts. The empire is divided into seven grand school-districts, in each of which it is planned to establish educational institutions for higher instruction. These grand school districts are sub-divided into middle and elementary school-districts. Of the latter there were in 1874, about forty-five thousand. Their boundaries are determined by the natural features of the country, care being taken to construct districts so that the access to the school may be easy, and also so that the ancient communal associations of the people may be as far as possible respected.

"The institutions of learning which have been organized under the department may be classified and described under the following heads:

"1 *Elementary Schools*.—The elementary schools are under the immediate charge of the educational officers of the local governments. As fast as the circumstances of the districts would justify they have been established, and where schools already existed they have been reorganized. In this way many schools have been adopted and have become public schools. A schedule of studies and other regulations for elementary schools was issued by the Department of Education. They are adhered to as far as the condition of the schools and the ability of the teacher will allow. Text-books on the various subjects of learning have been prepared under the direction of the Department and published for the benefit of the schools. Charts for teaching reading, writing, geography and arithmetic, have been prepared and issued.

"The entire programme of study is designed for eight years, and is divided into two courses—a junior and a senior course, each of four years. Each year is divided into two grades, so that each of the two courses is divided into eight grades of six months each.

"As fast as the wants of the community require it, secondary schools, graded so as to receive the pupils after they have finished the elementary schools, are to be established.

"The subjects of study are designed to follow those pursued in the elementary schools. They differ from those in corresponding schools in Europe and America in giving more weight to the native language.

"The elementary and secondary schools are supported from four different sources: 1. The Department of Education makes an annual grant to all the schools of the empire, in proportion to the school population in each district. The power to make or withhold this grant enables the department to require that the schools shall be conducted in accordance with the regulations prescribed. 2. In most districts the children are charged a small fee, which goes to the support of the school. 3. A tax is levied in each district under the supervision of the local school officers: it varies with the ability of the district and their willingness to sustain education. 4. Private individuals, especially the former daimios, who still have considerable revenues, and rich merchants, frequently make liberal donations for the support of the schools in their localities.

"To show the number and increase of elementary schools, the following table is given. It is estimated that in 1875 the schools numbered at least 30,600, and the pupils 2,000,000.

Elementary Schools and pupils.		1874.	Increase for the year.
"Elementary Schools, public.....		18,712	10,714
do do private.....		2,346	2,224 ¹
"Pupils of Elementary Schools, male.....		1,303,300	293,684
do do female.....		421,807	103,471
do do Total.....		1,725,107	397,155

"INCOME OF ELEMENTARY SCHOOLS, 1874."

Income for 1874.	Yen or \$*	Increase for the year.
"From School Fees.....	302,603 32	179,650 54
"From School district rates.....	1,458,610 06	620,291 32
"From voluntary contributions.....	1,080,845 46	651,080 78

¹ Decrease.

*The yen is almost identical in value with the gold dollar of the United States.

Income for 1874.	Yen or 8	Increase for the year.
"From Government pro-rata appropriations.....	272,330 17	27,804 89
"From interest of various funds	354,326 50	309,768 76
"From miscellaneous sources.....	326,407 50	66,428 40
Total	3,794,123 01	1,855,024 69

"EXPENDITURE OF ELEMENTARY SCHOOLS, 1874"

Expenditure for 1874.	Yen or 8	Increase for the year.
"For teachers' salaries.....	1,295,686 60	672,540 74
"For other salaries.....	282,527 51	150,516 54
"For expenses in inspecting.....	28,269 64	22,876 38
"For building and repairs	643,536 01	351,213 94
"For books and apparatus.....	488,137 25	176,400 45
"For fuel and lights	170,832 56	107,657 75
"For miscellaneous purposes.....	286,289 03	138,500 81
Total.....	3,195,278 63	1,619,706 61

"ELEMENTARY SCHOOL PROPERTY, 1874."

Approximate values, 1874.	Yen or 8.	Increase for the year.
"Value of School houses	1,038,026 57	505,752 66
"Value of School grounds	124,580 39	74,090 79
"Value of School apparatus	413,595 61	248,346 53
"Value of School books.....	367,653 53	179,867 85
"Amount of School funds.....	3,796,362 07	1,936,430 89
Total.....	5,740,248 27	2,944,488 72

"2. *Normal Schools.*—In 1872 a normal school was organized in the city of Tokio;* It was designed to give the pupils a good education in all the branches to be taught in the elementary schools, and also to give them instruction and training in the proper methods of teaching. This school has been in operation four years, and has sent out between two and three hundred graduates. It has connected with it a training-school of small children, where the pupils of the normal school are exercised in teaching. . .

"As soon as the success of the Tokio Normal School was assured, another was established in the third grand school district in the great commercial city of Osaka. One year later the system of male normal schools was made complete by establishing five others, thus giving one to each grand school district.

"Female education had never received that attention in the old system of education that its importance deserved. The wise and progressive statesmen of the present era, saw the necessity of giving to female education a great and a decided impulse. This purpose was secured by the enlightened generosity of the Empress, who resolved to do something to promote the education of her own sex. She gave from her own private purse the money necessary to erect a building for a female normal school, and directed the Department of Education to see her wishes carried out. An excellent building was thereupon erected on a beautiful and commanding site, and in October, 1875, it was dedicated in the presence of Her Imperial Majesty, with simple but impressive ceremonies. It was immediately opened for the instruction of female teachers, and is now in successful operation. . . .

*At the time of the removal of the imperial capital from Kioto to Yeddo, the name of the latter city was changed to Tokio, i.e., "Eastern Capital."

"TABLE SHOWING THE SCHOOLS FOR TRAINING TEACHERS.

Normal Schools in 1874.	Number.		Number of Teachers.	Number of Students.
	Governmental.	Local.		
First grand-school district	1	17	95	1,477
Second grand-school district	1	0	58	1,079
Third grand-school district	1	4	33	547
Fourth grand-school district	1	6	36	529
Fifth grand-school district	1	4	16	233
Sixth grand-school district	1	6	22	773
Seventh grand-school district	1	2	25	384
Total	52		285	5,022

"3. *Foreign Language Schools.*—For the present, . . . the higher education of the Japanese must come to them through a foreign tongue. Their own language is too deficient in the literature of foreign science, and even in well understood terms for the expression of the ideas of foreign learning and philosophy, to make it a fit medium for their consideration. . . .

Foreign Language Schools, in 1874.	Number.		Number of Teachers.	Number of Students.
	Governmental.	Local.		
First grand-school district	2	56	147	3,631
Second grand-school district	1	6	20	348
Third grand-school district	1	11	23	655
Fourth grand-school district	1	..	5	55
Fifth grand-school district	1	1	6	68
Sixth grand-school district	1	2	32	304
Seventh grand-school district	3	4	5	258
Total	10	82	247	5,319

"4. *University of Tokio.*—To provide for the higher education in this national system, the Department of Education has begun by establishing in the capital an institution of a higher grade. It grew out of the old foreign-language school, which was founded in 1856, and which has been developed step by step as the wants of the country demanded. It is designed as the receptacle for those students of the various foreign-language schools, who desire to obtain a professional or a technical education. Its present university organization was effected in 1873.

"At present the following schools are organized and in operation :—

"1. *College of Law.*

"2. *College of Chemical Technology.*

"3. *College of Engineering.*

"4. In addition to the foregoing departments of study, there is a *School of Arts and Manufactures* conducted in the Japanese Language.

"It may be mentioned that the greater part of the philosophical apparatus in the educational part of the Japanese exhibit, was manufactured at the School of Arts and Manufactures.

"The chief director of the university is Hatakeyama Yoshinari. The instructors are in part foreigners and in part Japanese. The following statistics will exhibit the present condition of the institution :—

"Directors	2
"Other officers	11
"Foreign professors	20
"Japanese professors and instructors ..	14
"Students in School of Law	17
"Students in School of Chemistry.....	24
"Students in general course	131
"Other students	156
"Total Students	349

"PROFESSIONAL AND TECHNICAL INSTITUTIONS.

"The want of trained public servants led the Government, at an early period of its foreign intercourse, to establish institutions to provide men educated and trained in the special arts of the West viz. :—

"1. *Military College.*

"2. *Naval College.*

"3. *Engineering College.*

"4. *Medical College.*

"In estimating the progress that has been made in medical education, we must not omit the organization of hospitals in the empire.

"TABLE SHOWING THE POPULATION AND NUMBER OF PUPILS IN 1874.

"Population of seven grand school districts	33,579,909
"Whole number of pupils,	1,739,422
"Percentage of pupils to population	5.18
"Pupils in elementary schools.....	1,725,107
"do do do males.....	1,303,300
"do do do females.....	421,807
"Pupils in government and local normal schools	5,022
"Pupils in foreign language schools	5,319
"Pupils in government colleges.....	3,927

"TABLE SHOWING THE NUMBER OF TEACHERS IN 1874.

"Whole number of teachers	38,365
"do do do male teachers	37,731
"do do do female teachers.....	634
"Teachers in elementary schools.....	37,611
"do do normal schools.....	285
"do do foreign language schools.....	247
"do do government schools.....	245
"Foreign Teachers.	2"12

Such is a brief sketch of the state and progress of Education in this newly awakened and progressive empire. The facts stated are worthy of our careful study. They will no doubt be read with interest by educationists in this country, who, in many cases, have not been aware of the remarkable strides which this ancient, but energetic and spirited people have been making during the last few years to overtake the civilization, and partake of the refinement of the modern nations of our old and new worlds.

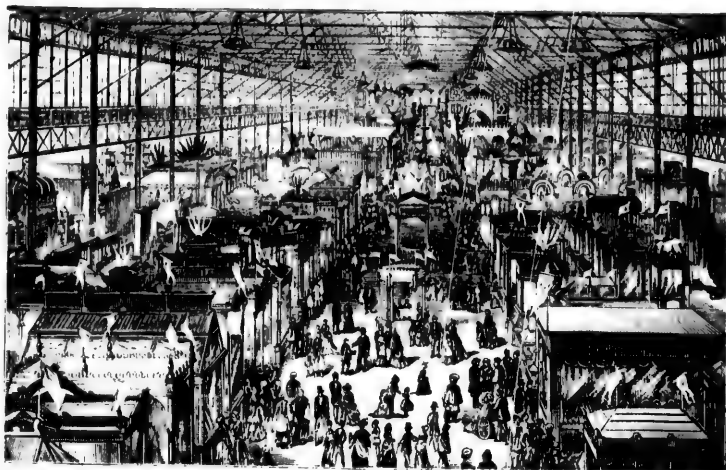
It was an appropriate coincidence that the Chinese and Japanese national exhibits were placed side by side in the main building. Their proximity suggested an interesting comparison, not only as between the evidences which these exhibits presented of industry, taste and skill, but also as to the differences which exist in the national and social condition of the people of each empire. In the Chinese department, or exhibit, there were abundant evidences of industry and ingenuity of invention and imitation in symbolizing, in vases, urns, and tripods, the national religion and mythology, of the country. In the Japanese department, there were the same evidences of patient labour, skill and ability in combination, as illustrated in the grotesque ornaments and articles exhibited. But there was, nevertheless, strikingly apparent in them, a refinement, a cultivated taste, and evidence of propriety, as well as a wonderful adaptation in reducing the mythological fable and traditional legend to real tangible shape. In the Japanese department there were also palpable indications of the presence in the national mind of foreign ideas, which had taken form and shape in various ways, but which were thinly disguised in a native dress. In the Chinese department scarcely a ray of light from modern European civilization seemed to have penetrated the mind of the artist or artificer of the grotesque figures, or fashioner of articles of domestic and social life, exhibited. In the Japanese exhibit the evidences were many and striking of an anxiety, on the part of the leading minds of the empire of the present day, to enlist on their side those potent means of intellectual life and vigour, which in Europe and America have proved such powerful auxiliaries to national enlightenment and elevation. In the Chinese collections there was nothing of real, substantial value to indicate that the thought of a higher and better civilization than their own had entered the minds of the people, or even existed in the world. Thus were the characteristics of these two ancient nations presented to the minds of visitors from all parts of this continent. It was a curious and instructive study; full of lessons of great interest to those who were never before brought into contact with modern eastern life. It dissipated many a prejudice, cleared up many a doubt as to facts, disproved many a theory, and brought out into strong relief the essential differences between two Asiatic nations of kindred type, which in the popular mind, were often confounded together or mixed up, as far-off people, in a dim haze of uncertainty.

It would, however, be unjust to the Chinese people to assume that because the Japanese exhibit at Philadelphia was essentially superior to that of the Chinese in its evidences of refinement, taste, ingenuity, and skill, that, therefore, they (the Chinese) were making no efforts to take higher intellectual rank among the nations of the world. Far from it. They, like the Japanese, have been aroused and stimulated, although more slowly, by contact with European and American civilization. They have been later in the field; but they are taking effectual steps to place themselves, like Japan, in the front rank of Eastern civilization. From a paper published in an educational periodical at Chicago, by the Hon. B. G. Northrop, a

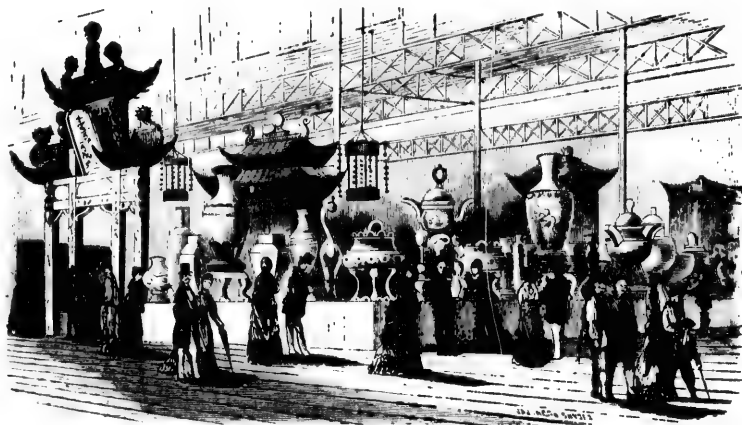
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THE GRAND AVENUE, MAIN BUILDING.—CENTENNIAL INTERNATIONAL EXHIBITION.—Page 82.



THE CHINESE EXHIBIT, MAIN BUILDING.—CENTENNIAL INTERNATIONAL EXHIBITION.—Page 82.

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distinguished authority on questions of this kind, and who, I believe, superintends the education of the Chinese in Connecticut, we quote the following passages, explanatory and illustrative of the steps which have been taken by the Chinese Government to deal practically with the great question of the extension of popular education in that vast empire. He says:—

"Every scholar who saw the magnificent exhibits of China and Japan will more easily orient himself, and henceforth study the geography and history of those countries with livelier interest. Still more will a new charm and vividness be imparted to all delineations of the nearer nations of Europe. It was a great and grateful surprise to all, that in the three departments of bronze, lacquer, and ceramic works, Japan was unrivalled. The brightness and intelligence of the one hundred and fifteen Chinese students whom I escorted from Hartford to Philadelphia, their quiet and gentlemanly deportment, and still more their examination papers and *English* compositions, shown in the Connecticut Educational Exhibit, have already modified public sentiment as to the character and capacity of that most populous nation of the globe. These written exercises are pronounced by eminent educators, including many State Superintendents of schools, among the most remarkable papers of the kind in the Exposition. The Bureau of Judges for Educational Exhibits, of which Sir Charles Reed, of London, was President, gave a special award to this work of Chinese students, in the following words: 'The work shown is generally good, some of it of very extraordinary excellence, showing on the part of the pupils, not only great proficiency and ability but, remarkable command of the English language, and thoroughness in their studies. By introducing into the schools of this country so large a number of Chinese youth, the Chinese government has rendered a great service to the people of China, and contributed somewhat to the solution of a question of vast importance to this country.' These promising Chinese students—already favourites in the choicest schools and families of New England, and winning prizes for their proficiency, in competition with American boys—ought, by their example and achievements, to counteract the prejudice against their race, current along our Pacific coast, and thus, in the words of the Judges' award, 'contribute somewhat to the solution of a question of vast importance to this country.'

"This educational scheme is a new departure for the oldest and largest nation of the globe, and initiates a national movement most significant and prophetic, promising to expand into broad agencies and vast results. These ambitious students, when equipped with the best education—academic, collegiate, and professional—which America can give in a thorough course of fifteen years, will return to China as the exponents of the highest civilization, and become the benefactors of their country by introducing modern science, inventions, and internal improvements. This far-reaching plan has enlisted the cordial sympathy of the most intelligent minds in our country. It was a fit expression of this national feeling when the President of the United States honoured these students with a special reception at Philadelphia, personally greeting each one, and the President and Director-General of the Exposition, Presidents of colleges, and other eminent men, addressed them in Judges' Hall. It is a compliment to Connecticut that Hartford is selected as the prominent head-quarters of the Chinese Educational Commission, for the support of which the Chinese government has appropriated one million and a half of dollars.

"One feature of the Chinese and Japanese Exhibits is worth noticing, as showing either a radical difference of type between the Occidental and Oriental mind; or else, what is far more probable, the difference between the results of the imperfect, traditional, fossilized education of the great empires of Asia, and that education of Christian civilization which we enjoy. Close observers have remarked that, while in the exhibits of the so-called Christian nations, the displays of skill were largely *inventive*, that is, devising new means and appliances for increasing comfort or productiveness, the skill of Oriental nations, perhaps no less wonderful of its kind, showed itself to be feebly *inventive*, being essentially and laboriously *imitative*, a reproducing of old ideas in innumerable forms of minute expertness in handcraft. Invention implies increase of power and growth of ideas and character. Mere imitation keeps a nation repeating itself for ages.

VII. EXHIBIT OF THE UNITED STATES GOVERNMENT.

One of the most remarkable and unique collections at the International Exhibition was that contained in the United States Building. It was remarkable for the great variety of Government industries and enterprises which it represented, as well as practically illustrated. It was unique, from the fact that it included in it material examples, or tangible evidences of the national interests, which the United States Government had practically to do with. It illustrated also in some degree, the material, social, and intellectual life of the American people, so far as that complicated life was in any way touched upon, or affected, by the Executive Government. In this aspect the whole exhibit was a curious and instructive study. It brought directly into view of the people the practical machinery of Government, so far as it related to material things, and presented in a tangible shape things which had to do with the details of national life, and the administration of Government.

This great and comprehensive exhibit of the American people, presented on so extensive a scale, was in reality a series of grand object lessons, most interesting and suggestive. It showed at a glance the extent of that great workshop with its many departments which the nation possessed, and in which it produced—while from its immense store-house, it dispensed—the various articles and material required for the use of the nation. The National Exhibit was indeed a National Depository on a vast scale, in which nearly every trade and industry were represented, but which were, of necessity under the control of the Government.

In speaking of this striking exhibit, the editor of the *Pennsylvania School Journal* regards it as:

“Certainly the best organized, and perhaps the most instructive exhibition on the Centennial grounds.” Further he says: “as a whole, and in its various departments, the result of order and method are everywhere apparent.”.....

In the belief that a brief description of this great exhibit, in the many scientific and educational aspects which it presented, will prove both interesting and instructive to persons connected with education in our Province, I have condensed the report of it which appears in the *Pennsylvania School Journal*. The editor says:—

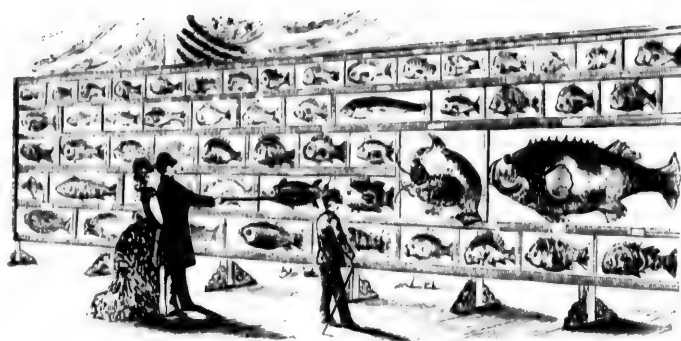
“The exhibit, taken together, was a practical miniature representation of the executive department of the United States Government in active operation. The completeness of the display, its systematic arrangement, and the labelling of everything in the Government building, were features which did not fail to impress the observant visitor most favourably.

“A visit here is a revelation of wonders connected with the Army and Navy department, the Department of Agriculture, the Post Office, Patent Office, Signal Service, Ordnance Bureau, Lighthouse Board, and all the subordinate departments and bureaus that are in any way connected with the Government.

“Here may be seen a wonderful collection of curious specimens of shot and shell, small arms of all kinds, ship's guns and howitzers, Gatling guns, and other terrible engines of naval warfare, that will show the world how well we are prepared to defend the flag that flies over building and house-top far and near. Then there are specimens of every description of naval stores, from a ship biscuit to a sheet anchor. Marine engines and boilers are also exhibited, showing what improvements have been made by the Bureau of Marine Engineering. Immense cables, with mammoth iron links and hawsers, so big that they look strong enough to hold the ship to her anchor though the four winds of heaven were blowing her away. Beautifully finished models of every class of ship on the naval list.

“Lifeboats and rafts of all kinds and shapes are also exhibited; and a handsome case contains the relics of the Polar expedition under Captain Hall.

“In the Naval section are also on view the various hospital appointments used in the



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navy—the beds and blankets, and even the surgical instruments which glitter with something of a ghastly light in the cases. Passing from the Navy Department, the visitor enters the Post Office Department, where he can mail his letters and buy stamped envelopes with the old Franklin stamp of the colonial times, which is impressed on the envelopes in the course of their manufacture in this Department.

“Nothing that is useful or necessary for the handling of the mails is unrepresented. . .

“In the Department of Agriculture, the whole country is shown on a special map. . .

“Every tree and shrub, flower and root, cereal and fibre, is shown in their respective sections. The fungi that destroy the different plants are illustrated by photographic and microscopic views, all forming the most remarkable exhibition of this kind that has ever been presented to public view in this or any other country. The various chemical products are also shown by specimens. The earths, with their oils, vines, and other productions, are also here. Tobacco, corn, fruits, are arranged according to class for inspection. Birds, insects, fishes, and reptiles are represented by magnificent specimens of the taxidermist's art, or by plaster casts painted to the natural colours. The Patent Office presents all the treasures and curiosities of its wonderful collection. Machines that have revolutionized labour, and machines that never could be made to go, are here in miniature.

“In the Department of the Interior is to be found a vast collection of Indian curiosities, idols and weapons of war and the chase, curiosities, carved and coloured. Warriors of the plains, in full dress, stare at you from quiet corners. Choice photographs illustrate the surveys made in the Western territories, and carry the observer into regions rarely trodden by the foot of the white man. Minerals of all kinds are displayed, and a most remarkable collection of traps used for the capture of fur animals, by the renowned trappers who figure so often in song and story.

“In the War Department we find the manufacture of arms and ammunition progressing.

“The Engineer Department of the army makes a fair display. In the way of torpedoes the display is full, and rather painfully interesting. Among the specimens, there are some which, bursting under a ship's bottom, would sink the vessel almost immediately.

“The Signal Service Department in operation, excites a great deal of interest and close examination on the part of visitors. The weather report has become a fixed institution, carefully consulted by all classes of newspaper readers. The manner of collecting reports from signal service stations relative to the condition of the weather, velocity and direction of the wind, condition of the barometer and thermometer at the points telegraphed from, the process of calculating from these reports—all shown lucidly in the section occupied by this department.

“A striking exhibit is made by the Lighthouse Board, illustrative of the different kinds of lighthouses erected by the Government in various parts of the United States. Specimens are also shown of the different modes of lighting in use, models showing construction of foundations of lighthouses, mineral oils, wicks, and all the appliances used in the lighthouse service. The Treasury and Internal Revenue departments are illustrated by framed cards containing specimens of currency, coins, bonds, stamps, etc. The Internal Revenue department exhibit also contains specimens of instruments used by its officials. The exhibit of the National Bureau of Education, which will attract the attention of the reader, is also found in the Government building.

EXHIBIT OF THE SMITHSONIAN INSTITUTION, WASHINGTON.

“The exhibit made by the Smithsonian Institution occupies the greater portion of the western section of the building, and comprises:—1. Ethnology of the United States; 2. Mineral resources of the United States; 3. Animal and fishery resources of the United States; 4. Publications of the institution, models, drawings, maps, etc.

INDIAN AND ETHNOLOGICAL COLLECTION.

“The south-western section of the building is occupied by a highly interesting collection to illustrate the ethnology of the United States. It is in charge of Dr. Charles Rau, and is made by the Smithsonian Institution in conjunction with the Indian Bureau of the Interior

department. The extreme western portion of the section is occupied by a large collection of photographs of Indian life and character, and of western scenery. Near by, arranged in cases, and occupying the greater portion of the section allotted to the Indian Bureau, is a most interesting exhibit of Indian work in stone, wood, bark and pottery. The specimens are very numerous, and have been collected from all parts of the United States, including Alaska, as well as from British Columbia, Greenland and Mexico. The collection of stone implements and weapons is probably the largest and most complete in existence, while that of pottery is almost equally valuable and attractive. Near the models of ruins of Colorado and Arizona is a collection of pottery taken from these ruins. It is decorated in black and white, and blue and white patterns. These patterns are rude, but show that the designers had mastered the art of preserving the patterns throughout, and knew how to combine colours and forms with some glimmering of taste. The designs are all very simple. There is also exhibited from the same section, matting made of slips of bark. The stone implements embrace specimens from almost every state of the Union. There are net sinkers, chisels, "scraper-like instruments," cutting tools, weapons used in ceremonial observances, adzes, gauges, digging tools, a beautiful collection of arrow heads and spear heads, perforators, grooved axes or tomahawks, some of them very large and ponderous hammers, nails, pierced stones for clubs, a great variety of pipes in clay and stone, boat shaped articles, plates, vessels for eating and drinking, rings, beads, tubes, pestles and mortars, and a very large collection of large stone implements from California, made by pre-historic tribes; rude sculptures in stone, a cast of one of the Mexican calendar stones, highly and delicately carved with images; idols carved out of stone, from Tennessee and Mexico, and a carved head of stone formerly owned by Thomas Jefferson, and now exhibited by Dr. W. C. Dabney, of Virginia. There is also a great variety of objects carved out of bone. Among these are wedges, smoothing tools, perforators, harpoon heads, rude knives, club heads, adzes, etc. A number of neatly carved cups and spoons of shell are exhibited, together with beads in great number and variety. There are curious idols made by the Mound Builders, carved and painted figures of wood, figures carved out of bone and inlaid with glittering shells; figures in wood, carved and painted in the most fantastic manner, by the Alaska Indians; a number of utensils of metal, bone and wood, carved and made by the Blackfeet Indians; a box of painting tools from the Kolosh Indians, of Alaska; a large wooden figure painted in red, white and blue, with a hideously distorted face, carved by the Indians of Vancouver's Island; spoons made of the horn of the mountain goat, by the North-west Coast Indians; berry spoons, ladles, etc., of carved wood from the Alaska Indians; a spoon made of horn from Greenland; war knives and hatchets of steel from the Proquet Indians; clubs, with projecting steel points, from the Lake Superior Indians; war clubs from the Indian tribes of Colorado; ancient stone war clubs used by the Kintznon Indians, of Alaska; war knives from Sitka; wooden chests, carved and painted by the North-west Coast Indians; a beaver's head and claws supporting a cup, all carved out of wood, and the contents of which, the label tells us, 'made one drink of whiskey.'

"The display of pottery is particularly attractive and occupies the eastern end of the section. There are two vases in the collection from Mexico, which are really excellent specimens of decorative work of a higher order. One is coloured in black, gold and silver, while the other is covered with an elaborate pattern in various bright colours tastefully blended. There are also some good specimens of pottery from the Moquis and some from the Alaska Indians. From the Esquimaux there are several stone lamps.

"A row of cases on the southern line of the section contains a number of highly interesting specimens of Indian dress. In one case is exhibited the very complete and valuable collection made by Major J. W. Powell, during his exploration of the Colorado River of the west. It comprises the different dresses worn by the Pah Utes, of Utah, including a variety of specimens varying greatly in size, richness of decoration and in style, but all made of the same material, buckskin. About the neck of one of these dresses is hung a necklace made of the talons of a bird. The costume consists of a shirt, leggings and moccasins. The shirt is generally decorated with a baldric of red flannel or other material covered with bead-work in red, black, yellow, white and blue. From the edges of the shirt and the sleeves hangs a long fringe made of buckskin thongs. The leggings are similarly ornamented. The back of the shirt is also decorated with the wings of birds, while from the shoulder sometimes hangs the tail of some animal. The moccasins are of buckskin, embroidered in bead-work. The next cabinet contains samples of fur and skin dresses worn by the Esquimaux of the North-west

Coast. Among these are some handsome mantles made of the variegated plumage of birds. Near by is a collection of baskets, mats, sashes, hats, gloves, feather ornaments, bead-work, etc. There are several models of Indians and Esquimaux in full dress, and a collection of war shields and weapons used by the Grosventre Indians of Dakota, the Indians of Florida, and the Sioux and Comanche tribes. In the adjoining cabinet are exhibited baskets, water bottles, etc. There is also a very full display of food products raised by the Indians, such as Indian corn; moss, used with spruce gum; acorns which are ground into flour and made into bread; seeds used for food; pine nuts, roots, beans, and specimens of salt used by the Apaches, and by the Neshanum, Tule and Tejon Indians of California.

UNITED STATES COLLECTION OF METALS AND MINERALS.

"The north-western section of the building is occupied by a collection made under the auspices of the Smithsonian Institution, and especially for the International Exhibition, to illustrate the mineral resources of the United States. The objects of the collection have been to illustrate: 1. The nature and variety of the mineral resources of the United States. 2. The geographical distribution and geological associations of the minerals. 3. The extent to which they have been utilized. 4. The mechanical, metallurgical and mechanical processes by which they are converted into useful products; and 5. The inherent and comparative qualities of these products. A portion of the collection—particularly the crystallized minerals, and marbles and granites—has been arranged according to the nature of the specimens, without regard to the locality from which they came, but the greater part of the collection is arranged geographically by states.

"The most inviting display of crystallized minerals is contained in two upright cases, which are placed in the extreme north-western section of the building. This exhibit is said to embrace the finest display of crystallized minerals in the whole exhibition; and the specimens have been selected as exhibiting the handsomest and rarest forms in which these minerals are found, but are not designed to be in any sense a complete collection, representative of all the crystallized minerals of the country. Here are to be found some specimens which are unique, and perhaps unsurpassed in any other collection in existence.

"The collection of Marbles, which occupies the western end of the section, is extremely interesting.....

"The exhibit of Marbles from Tennessee, is very attractive. Some of the slabs are mottled with the impressions of fossils embedded in the marble. These give the stone a very curious appearance, and it is a very interesting thing to trace out in the marble the distinct outlines of these fossil remains.....

"Nevada has a larger and more complete representation of her mineral resources than any other state, owing to the liberal appropriation by her legislature of \$20,000 to secure a representation of the products and resources of the state at the exhibition. Among the exhibits are specimens of native sulphur in large blocks, crystallized wulfenite (very rare and fine,) native salt, borax, gypsum, carbonate of soda, sulphate of copper, and a very large representation of gold and silver ores. One case is filled with specimens of ruby silver from the Reese River district, together with some very valuable specimens of stephanite. Four cases are filled with ores from the famous Comstock Lode or "Big Bonanza," and among the specimens is the first bar of silver, about two inches in length, ever taken from this lode. There are beautiful crystals of aragonite and specimens of silver retorted from the amalgam. From Teme-cal tin ore is exhibited. This is quite an interesting feature of the collection, as tin is very rarely found in any quantity in this country. Beautiful incrustations of malachite and azurite, together with crystallized salt, amethyst quartz, and plain quartz, are also exhibited.

"California sends a case containing silver-bearing copper ores from Panamint, Ingo county, which present a very handsome appearance from their mottled blue, green, yellow and brown surfaces. There are also specimens of drills used in drilling ore, and giant powder cartridges for blasting. Cherokee county sends sandstone containing diamonds and specimens of gravel containing beautiful nuggets of gold. There are gold ores from all the principal mines, some of the specimens showing the entire width of vein; also a number of specimens of mercury from Sonoma Lake and other counties, and a beautiful specimen of the rare mineral meta-cinnabar.

THE SMITHSONIAN EXHIBIT OF LAND ANIMALS.

The collection made by the Smithsonian Institution, to illustrate the animal resources of the United States, occupies, together with the fishery exhibit, the principal portion of the north-western section of the building. Many of the objects have been placed in the same cases with fish exhibits, but as far as possible they have been kept distinct. The collection may be divided into three groups, under the following heads: 1. Preserved specimens of animals. 2. Means of pursuit and capture. 3. Animal products and their preparation. The exhibit is confined to non-domesticated animals, in view of the fact that a very full exhibit of the domesticated animals is made by the Agricultural Department, and the design has been to exhibit only such non domesticated animals as are directly beneficial or injurious to man. Although every species, down to the very least, exercises some influence upon the well-being of man, it seems scarcely practicable to attempt the exhibition of those which affect it only in an indirect way.

"The collection of preserved specimens of animals embraces some of the finest specimens of the wild animals of North America which can be obtained, and has been prepared with great care.....

"The implements and apparatus for hunting are divided into:—1. Hand implements or tools for striking, cutting, and thrusting. 2. Implements for seizure of objects, such as barbed implements, grasping lines (nooses), snares, thrown nooses, and loaded lines. 3. Missiles, including hurled weights, hurled sticks, hurled spears, slings, and spears thrown by straps, missiles propelled by throwing sticks, bows and arrows, guns, and accessories. 4. Nets. 5. Traps. 6. Decoys and disguises. 7. Methods of transportation. 8. Personal equipments.

"The collection of hand implements includes a highly interesting collection of clubs used by the Indians of the west, and also by the North-west Coast Indians: knives of various patterns and sizes, including the stone and bone knives used by the Indians and Esquimaux: axes, tomahawks, cleavers, and hunting spears. The implements for the seizure of objects embrace chiefly barbed spears for thrusting, used to a great extent by the North-west Coast Indians. Some of these have fixed heads, and others detachable heads. The collection of nooses is confined almost entirely to the lariats made of hair, of hemp, and cowhide, by the Indians of the plains. There are also bird slings, used by the Esquimaux, and entangled lines, chiefly used in catching birds. The collection of missiles is very complete and curious. It embraces, among other things, an interesting set of throw sticks, used by the Moqui Indians of New Mexico for hunting rabbits. These closely resemble the boomerang used by the natives (black) of Australia, specimens of which are placed beside the throw sticks. There are also darts, lances, slings, and a number of bows and arrows, the majority of which, however, are exhibited in the Indian and Ethnological collections. In the collection of hunting nets, are rabbit nets used by the Indians of the south-west, bird mesh nets, clap nets for birds, rabbit spring nets, and sieve nets for birds. The various kinds of traps used in almost every section of the country are very completely represented, including specimens of steel traps used in catching bears, box traps for catching hares, foxes, squirrels, opossums, &c., and steel traps for catching rats, birds, muskrats; spring traps for catching hares, grouse, &c.; the log dead-fall used in the Mississippi Valley, fall traps for partridges, grouse snares, and fox traps made of bone, used by the Esquimaux.

FISH COMMISSION EXHIBIT.

"The exhibit made by the United States Fish Commission, in connection with the Smithsonian Institution, occupies the greater portion of the space reserved for the exhibit of the animal resources of the United States, and is designed to illustrate, as completely as possible, the fishery resources of the country. Photographs, drawings, and plaster casts of fish, together with fish preserved in ice, have been obtained, as also a very complete and interesting collection of fishing vessels, boats, &c. (full size and models), apparatus used in whale fisheries, nets, traps, and pounds, prepared specimens of aquatic animals, and other products of the waters, and economical application of some of these products.

"On an upright partition, near the specimens of fishing boats, is exhibited a beautiful display of sea-weeds from deep sea soundings, and from the surface. They are preserved on card-board, and framed, and they comprise some very rare and pretty specimens, coloured in beautiful tints, from the palest pink and green to the richest purple. Extending from east

to west is a double line of partitions, on which are arranged the admirable collection of plaster casts of fish, specially prepared for the Smithsonian Institution, together with the specimens of fishing tackle, which have already been mentioned. The northern wall is occupied by a very large and fine collection of photographs of fish. The plaster casts are by far the most interesting portion of the fishery exhibit. These casts are obtained in the following manner:—The artist of the Smithsonian Institute, Mr. J. H. Richard, first copies in water colours the fish fresh from the water. Plaster casts are then taken from the fish, and the casts are painted in imitation of the water colours. This is done with the greatest minuteness, each scale being painted separately. It is claimed that these specimens are much more accurate representations of the living fish than preserved specimens would be, since the colour of the living fish is often not retained after death. The models, however, are coloured from paintings of the fish made while it is still alive. There are 408 of these models, all arranged on screens placed at regular intervals. Parts of 234 families of fish are represented, and it is believed that none of the food fishes of any importance of the North American coast, from the Arctic coast to Mexico, are omitted. The collection has already cost between \$20,000 and \$25,000, and is undoubtedly the finest of the kind in the world.

"The whale fisheries are fully represented by models and specimens. There are three very interesting models representing 'a whale in its dying flurry,' 'striking the whale,' and a camel floating dock, for floating whaling vessels over Nantucket bar. Near these models are a group of objects used in whaling, such as harpoons, lances, axes, harpoon lines, tubs, boat-keys, hand mincing-knife for cutting lubber, head axe used in getting off the whale's head, knives for cutting lubber on shipboard, and four enormous jaw bones of whales. There is also a model of whaling vessel, five feet long, and plaster casts of the white whale and of the black sperm whale. Also a fine collection of preserved seals, walruses and sea lions. Oysters are represented by a very full collection, not only of shells of oysters in a healthy condition, but also of oysters destroyed by whelks, boring sponge, starfish and other enemies, together with specimens of oysters growing on stones, rubber boots, jugs, etc. The collection of pearl oysters and of ornaments made from them is very beautiful. There is also a full collection of clams, mollusks, mussels (some of them in the most delicate and beautiful tints), gapers and sea shells of various kinds, together with the different varieties of crabs, lobsters, sea-urchins, and starfish.

"The methods employed by the Fish Commission for the production and propagation of fish, together with the appliances and apparatus used, are fairly represented. These include fish-ways to enable salmon and shad to force their way over dams in rivers, apparatus used in collecting specimens of fish, publications of the Commission, and the varied appliances which are at present made use of in propagating fish and oysters."

UNITED STATES DEPARTMENT OF AGRICULTURE.

This department is classified under five distinct heads, viz: chemistry, natural history, and economic museum, microscopy, botany, and statistics.

"The collection of the chemical division consists of soils, rocks, marls, fertilizers, agricultural and horticultural products, and materials manufactured from them. The object is to show, as far as possible, in this way, the history of soils, and their formation by disintegration and decomposition of rocks; marls, including the green sand, calcareous and phosphatic, from different ages; natural fertilizers and their application in manufacture of artificial fertilizers; the agricultural and horticultural products, the value of which depends upon the chemical composition, and their utilization by means of economic methods, involving chemical processes. To carry out this plan, a series of samples of soils is arranged with reference to the geological formations from which they were obtained. Another series, accompanied by samples of rock, illustrates the formation of soil by the disintegration and decomposition of rocks. For example, there is a specimen of dolerite rock and soil, formed from decomposed dolerite, granite and gneiss rock and the soils formed from them. And so, also, with the rocks of other kinds, and from other geological formations.

"Following these series are the marls, among which are some fine specimens of green sand and calcareous marls from New Jersey, and phosphate marls from South Carolina. The samples of phosphatic marls are taken from different depths beneath the surface,

ranging from 3 to 56 feet. The next interesting features of this collection are the phosphatic rocks from South Carolina. In one case, fine specimens are exhibited in a manner designed to strikingly illustrate the differences between the two kinds of phosphate of lime, known as river rock and land rock; and the fossil teeth and bones found in the different formations. The river rock is much darker than the land rock, both kinds are found in irregular masses, varying in weight from that of the smaller specimens of one or two pounds, to that of the larger specimens found in another part of the collection, and weighing 1,150 lbs.

"In regard to the cereals, there is, first, the manufacture of flour and meal from wheat, rye, corn, buckwheat, etc., illustrated by means of specimens taken from different stages of the process employed—from the raw grain to the finished product, and the waste materials resulting. The special products used for food and manufactured from cereals, such as wheaten grits, steam-cooked and desiccated wheat, barley and oats, oatmeal, etc. The further utilization of cereals is illustrated by starch and gum. Among these are starch from wheat, corn and rice, and the gums made from them, and of value on account of their adhesive qualities. This portion of the collection is accompanied by models of machinery employed in the process of manufacture. The production of sugar is represented by specimens of cane sugar and molasses from New Orleans; beet sugar from California; maple syrup and sugar from New England; models of concentrators, filters and dryers, and photographs showing the method of collecting and concentrating maple sap.

"Another case contains a series of specimens illustrating the production of vegetable oils. In this branch of manufacture two methods are employed, that of expression and that of fractional distillation. By the first method, castor oil, linseed oil, and cotton seed oil are obtained. They are represented by specimens of the seeds, the pomace, raw and refined oils, the cake from the press, and the cake ground for cattle food and for fertilizers. By the second method are obtained principally the essential oils employed for the manufacture of flavouring materials and perfumes. Of these essential oils there are eighteen manufactured from native products, a fact not generally known. All these essential oils are shown.

"The next subject for study is the preservation of fruits and vegetables. The different methods employed for this purpose are hermetically sealing, desiccation, and packing in sugar and syrup. The first method consists of packing fresh fruits in glass and tin with exclusion of air, and is represented by specimens of canned goods from various sources. The second is illustrated by specimens dried by the processes of Alden and others, and the third by a series of fruits prepared by Gordon and Dilworth, of New York. In another section are the more valuable vegetable products of the American *Materia Medica*, with their active proximate principles separated in the crystalline form, the oil or the resin, as the case may be. The products employed in, and resulting from the manufacture of butter and cheese, occupy a portion of another case, and form an interesting and instructive series. They consist of milk, cream, butter, salt, rennet, curds, and different grades of cheese manufactured in New York and the New England States. The specimens of vegetable products are all arranged in the cases with reference to that stage of the process of manufacture from which they were taken, in such a manner as to illustrate clearly the changes through which the raw material must pass to render it fit for marketing and consumption.

"The Natural History Department and Economic Museum comprises, first, the science of entomology. This collection is made and classified rather for the purpose of denoting the injurious, beneficial, and edible insects of the United States, than as a complete scientific museum. The insects are arranged, therefore, according to the crop destroyed, and include the eggs, larva, and perfect insect of the well-known potato bug (*Doryphora Viridissima*), and all other insects deleterious to the potato are shown in the same way. Next are those affecting cotton, corn, and all staple crops, and these are followed by insects affecting forest trees and those available for food.*

* In our Educational Museum, at Toronto, we have an admirable collection of insects destructive to vegetation, with actual specimens, and of those useful in *Materia Medica*, which was obtained by me at the Paris Exhibition in 1867.

"The latter are mostly of the grasshopper tribe, and their appearance is by no means tempting. Next in order are arranged the insects destroying household property and depredating on the larder. All the above are contained in twenty-four small cases, and in connection with the display are some three hundred plates, illustrative of the principal injurious and beneficial insects in the United States, and the direction of their appetites, engraved on steel by Prof. Glover, the entomologist of the department. There are about 7,000 figures in these engravings, which are all coloured true to nature.

"A very large collection of birds follows, and has been made and classified with the same avowed object as the entomological specimens, viz.: To denote to the farmer and agriculturist the chief beneficial and injurious birds of this country. The qualities or grades are shown by the ends of the perches. If these are painted all white, then the bird is wholly beneficial; and the degrees of injury are shown by painting the ends of the perch a quarter, half, or wholly black, as the case may be. Accompanying nearly every bird is a small box containing the contents of the stomachs, taken at different seasons of the year, to verify this fact. There is a most complete and well-arranged display of domestic poultry, chiefly of American origin. The pure breeds are shown true to name, so that the farmer may very easily distinguish their peculiar beauty and compare them with his own. Next are domesticated ducks, turkeys, guinea fowls, etc. with some specimens of food ducks, and about thirty specimens exhibiting the crosses between the common domesticated duck and the wild mallards. The upper part of the case contains a few of the fancy breeds of pigeons.

"The fruit display is very large, and, when closely studied, very interesting. There are about 3,000 specimens of apples cast in plaster from the fruit itself, to insure accuracy in size and shape, and painted in oil. Included are specimens of the famous "Gloria Mundi," weighing twenty ounces, placed for comparison side by side with the small Alaska apples, which are no larger than cherry stones, and in appearance resemble them closely. The apples are arranged—some of the same sort from each state—to show the various effects of climate and temperature. For instance, the "Baldwin" is smaller when grown in the New England States, yet that section is undoubtedly its true home, a point demonstrated by the fact that when planted in the west, it becomes larger, more spongy, and subject to the bitter rot, and of poorer quality generally. Included in this section are pears, plums and collections of the principal vegetables, such as watermelons, beets, etc., arranged and classed in similar order.

"In the grain section there are about 800 samples of American grain collected from every State in the Union, and arranged in this order. The object of this collection is also to show the difference between the same varieties in distinct parts of the country. There are 125 samples of maize or Indian corn, amongst which are specimen ears, only three inches long, grown by Indians in Arizona, in comparison with which there is an ear from New York, measuring seventeen inches in length. In this collection are also about 100 samples of manufactures from corn, wheat and other cereals.

"In the direction of fibres, there is a collection of American wools, representing the principal varieties grown in this country, from the finest Merino fleece, about one inch long, to samples of the Cotswold, one foot in length. Below these are samples of the wool in every stage of manufacture, from raw material to Brussels and Wilton carpets, and shawls, stockings, etc. Next come the cottons, of which there are about 200 samples, illustrating the manufacture of that article. With these are arranged specimens of jute, flax, and hemp, and a collection of miscellaneous fibres.

"Adjoining the fibres is a very interesting collection of paper, showing it from the raw material through all its stages of manufacture, from straw, bogus manilla, scrap manilla, and rope manilla, to straw manilla, book-coloured, flat and American linen papers. Other samples of paper that have been experimented with are also shown, and to complete the collection is a specimen of paper made by wasps. It is really a nest, but from first to last it is made in the same way as we make our paper by machinery—another illustration of the truth, that there is nothing new under the sun.

"Under the head of microscopy there are about 400 frames containing illustrations of various fungi, including mushrooms, edible and poisonous, and fungous diseases of agricultural products, fruits, etc., and others destructive to plant life.

"In the botanical section is a collection of American forest trees from all parts of the country, classified in the same way as the fruits, to show how the same trees thrive in different latitudes. The specimens are each about two feet long, arranged on two shelves in two lines. Above are frames containing pressed leaves and flora of each specimen below. In addition to these is a small stand of sub-tropical trees of the United States, including the palmetto and others of the same class.

"There is also a series of large maps, the first in five degrees of density, showing the value of farm lands in the United States; the seconds shows the respective rates of wages in the various States; the third map illustrates the woodlands of the United States, and the fourth indicates the distribution of the cultivation of cotton, flax, wool, hemp and silk throughout the entire extent of the country."

THE UNITED STATES LIGHT-HOUSE SERVICE

"exhibit is admirable. The eye is at once attracted by the beautiful display of lanterns, a large rotary one of the first class creating great curiosity in those unfamiliar with such subjects. The general shape of these lanterns is much like an exaggerated pineapple, the lenses and prisms representing the scales. The uninformed observer usually turns away with the impression that these prisms are merely for the sake of ornament. On the contrary, their shape, their size and position have been determined by the best skill of the optician, and each individual triangular piece of glass performs its special duty of receiving and transmitting the rays of light from the lamp. To those unlearned in the science of optics, the following facts in relation to light may be of value in helping to understand the construction of these lanterns:—Rays of light continually diverge or separate, so that the farther away one is from their source the fewer rays are received by the eye, and as the distance is increased the brilliancy is diminished until the light entirely fades from sight. It will be perceived, then, if the rays could be made to go in parallel lines, the light would be visible at any distance in the direct line of the rays, were there no intervening object. The purpose in the construction of these lamps is to send out parallel rays. This can be accomplished in two ways—by refraction, that is, changing their course through a glass lens or prism, and by reflection—a polished surface behind the lamp. This latter method has a familiar example in the locomotive head-light, which, with an ordinary sized lamp, throws a flood of light along the line for a great distance. It will be noticed, also, that at either side of the straight track the light is feeble, the greater portion of the rays taking a straight course.

"These pineapple-shaped lanterns utilize every ray of light from the lamp, both by reflecting and refracting them, and send them all out in straight parallel lines. The central lens receives all the diverging rays which strike it, and sends them out like the round head light of the locomotive. Arranged above and below it are triangular prisms, each of which receives its quota of rays, which it sends on the same route as those from the lens. All the rays, however, which strike a prism are not refracted,—that is, do not pass through the glass. Some of them are reflected from the surface, and these also are utilized, as they are sent off at such an angle from the glass that they take the same route as those which were refracted. The result of such a combination of rays is to make one vast beam of light, which can be seen at a great distance. Some of the lights on the Atlantic coast can be seen for twenty-eight miles.

"The lanterns are divided into six classes, the class being determined by the distance of the lamp from the surrounding lenses. The farther these latter are from the lamp, the larger they must be. First-class lights are those which are placed on the headlands running farthest out to sea. They are placed on high towers, and are the first lights seen by the mariner when he approaches a coast. These, of course, have the largest lamps. Second order lights are similar in construction, but on a smaller scale. The smaller lights than those first named, are used in narrow seas or passages, on the courses of rivers, or at their outlets, where they empty into a bay or gulf. Many circumstances are to be taken into consideration in determining the character of a light at any given point, the conformation of the shore, the distance it is to be seen, its proximity to other lights, are all elements in the calculation.

"Some lights are fixed, others are revolving or flash lights. The former class are in-

tended to send a beam in a particular direction, or are in a cylindrical lamp, which shines equally well in all, though not with so great brilliancy. The revolving or flash lights are represented in the exhibition by the lanterns before described. It may have occurred to the reader that a vessel on first perceiving a light on approaching a coast, might, if not entirely certain of her reckoning, be misled by it, thinking it to mark the entrance to a different harbour. The flash light makes a variety which perfectly indicates its locality to the mariner. As has been before described, the parallel beam of light is seen only in the line of its route; as the lantern revolves the direction of this beam is continually changed, so that the light, at one instant bright, in the next disappears, and is not again seen until the revolution brings the next set of lenses to bear upon the vessel. The length of time elapsing between these flashes affords a means of identifying the locality; thus some lights flash at intervals of 60 seconds, others at 30, and others at 10. The large lamp revolving in this exhibition will show a face quite as frequently at ten seconds. The lamp is made to revolve by clockwork, which runs by a weight suspended in the tower. The works require winding every four or five hours, and the watchman who falls asleep endangers the shipping in his vicinity; for by the stopping of these revolutions his flash light becomes a fixed light, or no light, and thus misleads the mariner. To guard against unfaithful watchmen a system of daily reports has been adopted, by which each light-keeper acts as a check upon his neighbours. The lights are so near each other on our coast, that each keeper may see three or four, and should he fail to see all these lights, his report must show the hour of such failure. He cannot know the cause. Should his own light fail, he reports the cause, and the two reports will show the faithfulness of the keepers.

"The lamps are of peculiar construction, and are the invention of Mr. Funck, who has charge of that special department. Those for the three largest sizes are what are called fountain lamps—that is, the reservoir is above the lamp, with which it connects by a tube. The burners are of the argand pattern, and are four in number, one within the other. Lard oil is used in all the large lamps, and mineral oil or petroleum in the smaller sizes. It has been found that a more intense light can be produced in a moderate-sized lamp with petroleum, but with the increased light there is also an increase of heat, and this volatilizes the mineral oil so rapidly that the supply of air is not sufficient to burn the carbon, and the lenses are thus coated with it. The illuminating power of the different oils is tested by an instrument which is on exhibition, called a radiometer. Thus a certain oil is said to be eight-candle oil, equal to eight candles; and oil of this quality is generally used. A first-class lantern produces a light equal to 400 candles.

"There are also floating lamps, which can be anchored over any dangerous shoal. On the western rivers, especially on the Mississippi, where the channel changes daily, the new channel must be marked daily. For this purpose a small lantern is hung upon a stake, and hence the name 'stake light.' Each day the keeper in charge of these lights sounds the channel and removes his stakes.

"The Lighthouse Board have now in service 953 lights, as follows: First order, 46; second, 28; third, 67; fourth, 190; fifth, 125; sixth, 179; reflector lights, 38; stake lights, 280. There are also 53 fog signals. One consists of a large bell, tolled by clockwork; the other is a siren, or steam fog-horn, which, it is said, might be heard for a distance of 25 miles. This instrument is one of a class which Prof. Henry, of the Board and of the Smithsonian Institution, has laboured long to perfect, and it is the most effective of its class. The steam is forced through two revolving discs, pierced with round holes. The discs are placed close together, and revolve in opposite directions. Steam passes only at the instant when two holes are opposite each other, and the current is thus continually interrupted, the rapidity of the interruption giving its pitch to the far-sounding horn."

THE UNITED STATES SIGNAL SERVICE BUREAU.

"This very important branch of the government service has been, to a very great extent, the creation of Gen. Albert J. Meyer, Chief Signal Officer, U. S. A., who is now familiarly known as 'Old Probabilities'

"General Meyer, when in command of the Signal Corps during the war, communicated information across districts where it would have been impracticable for U. S. Military Telegraph Corps to have run its wires. At the close of the war, Gen. Meyer was

called upon to organize a system of daily weather reports, in connection with his Signal Service Corps. This his studies and tastes admirably fitted him for, and the work has begun.....

"He started out with the principle that the observers should be not only qualified, but should be under strict military discipline. In this way only could reliable data be obtained. He therefore accepted none but enlisted men for observers, and these were first instructed in their duties before being put into service. Observing stations were established at all the important cities in the Union, and at every sea and lake port which was accessible by telegraph. Many other important seaports have since been reached by a coast line of telegraph, built for the purpose by this department. At these stations observations were made three times in the twenty-four hours, at intervals of eight hours, all being made at the same instant of time. The results of these observations are sent immediately by telegraph, by the operators connected with the signal office, to the office of General Meyer, at Washington, and from these data skilled officers make up the "Probabilities" for each locality, which are so universally consulted by the readers of the morning papers before they venture over their thresholds. The predictions, and the reports from all the stations, are telegraphed to each station. The observers note, first, the state of the barometer; second, the state of the thermometer; third, the humidity of the atmosphere; fourth, the rainfall; fifth, the direction and velocity of the wind. For this purpose each office is provided with a barometer, a thermometer, a wet and dry bulb thermometer, a rain-gauge, and an anemometer.

"The display here made showed a signal station with all these appliances. The instruments, as exhibited, were all self-registering, and make a record fuller and more accurate than any made by human observers. They are all of American invention, and are principally by gentlemen connected with this department of the service."

THE UNITED STATES PATENT OFFICE.

"The exhibit of the Patent Office embraces 5,000 of the most interesting models in the possession of the Patent Office, together with the publications of the office and a selected series of drawings and explanations of models. The models aggregate about three per cent. of all the models in the Patent Office, and have been classified under the following heads; Agriculture—harvesters, mills and presses; architecture—civil engineering, railways, navigation; metallurgy—metal working, wood working, steam hydraulics; pneumatics—mechanical movements, hoisting, horse powers, journals and bearings, vehicles; firearms; textile; printing and stationery; stone, clay, glass; leather; light, heat, electricity; household—chemistry, gas, ice and fine arts.

"The number of patents issued from 1779 to 1873, is 160,000.

"The Patent Office also exhibits an interesting collection of national relics.

THE UNITED STATES POST OFFICE DEPARTMENT.

"Among the postal exhibits shown, the most interesting is a delicately constructed machine which makes the Centennial envelopes. The flat piece of paper is placed in at one end, and is drawn through the intricate machinery, receiving the stamp, and being gummed and folded, passing out at the other end, a complete envelope, ready for use. As every twenty-fifth envelope passes into the tray awaiting its reception, the next envelope slips automatically a little out of the regular line, in order to mark the divisional number to be included in each package. So beautiful and regular is this piece of mechanism in its every movement, that it seems as if it were endowed with life and understanding, and indeed, the best mechanics could not make by hand envelopes with anything like its precision. The rapidity of work may be judged from the fact that, on an average, twenty-five thousand envelopes are made a day by this machine, without taxing its capacity in the least.

"There may be seen in this vicinity, in handsome frames, fine specimens of all the different varieties of stamps, stamped envelopes, mail bags, topographical maps of the various post-routes, and all the principal blanks, bound in book form, used by the depart-

ment. Other interesting exhibits are Franklin's old ledger account when he was post-master, and a model showing the patent mail-catcher used in the fast mail trains, which pick up the letter bags at the stations, while the train is running at full speed.

EXHIBIT OF THE UNITED STATES BUREAU OF EDUCATION.

Such was the general character of the well planned and comprehensive exhibit of national "material" and of scientific and industrial appliances in use by the several departments of the United States Government. There was one section of that exhibit, however, to which we have not yet referred—that of the United States Bureau of Education. In the skilful hands of the indefatigable Commissioner of Education, General Eaton, this portion of the exhibit was rendered most interesting and instructive. It consisted of two parts; first, that which illustrated the subject generally and so far as it dealt with a national interest,—though in the hands of each state government; and secondly, that which gave practical illustration of the efforts of the United States Government to educate the Indians, and otherwise to ameliorate their social condition.

It was General Eaton's purpose to make the first part of his exhibit historical, as well as representative of the various States, and comprehensive, so far as the educational institutions and agencies in the Republic were concerned. In carrying out this scheme he was, however, only partially successful. Either for lack of time, or for want of general co-operation, the display was not as complete as desired. On this point, the correspondent of the *New York Tribune* says:—

"Gen. Eaton's plan was to illustrate the scope of our educational institutions, by means of photographs or engravings of school and college buildings and their plans, copies of their catalogues, showing the nature of the instruction given, specimens of the apparatus used, and of the work performed by the pupils. The historical branch was to contain models of modern school buildings, and of those in use 50 or 100 years ago, and specimens of apparatus, text-books, etc., compared with those in former use. Although the interest shown by educators throughout the country in the exhibition, was not as great, nor the contributions they made as numerous as it had been hoped they would be, the display is in many respects a very suggestive one, and worthy the study of teachers and all others interested in popular education."

To a considerable extent, however, the Commissioner was able to carry out his plan, so far at least as to have illustrations in the several departments of education which he had named.

General Eaton's own contributions to the exhibit were exceedingly valuable. They included (1) his own voluminous report for 1875; (2) a special report in two volumes on the libraries of the United States. This report was projected by Gen. Eaton, and the work upon it has been done by Mr. Samuel A. Warren, Statistician of the Bureau, with the assistance of Major S. M. Clark, also of the Bureau. Volume one, which contains 1,187 pages, gives the statistics of all public libraries in the United States containing more than 500 volumes each, with historical accounts of the more important libraries, prepared by the librarians at the request of the editor. Volume two (89 pp.), contains rules for making a printed Dictionary Catalogue, by Mr. Chas. A. Cutter, Librarian of the Boston Athenæum.

This report is illustrated, and is supplied with an excellent index,* (3) A Special

* In *Belford's Magazine* for February, I have thus referred to this report:—"A most valuable official document, relating to the promotion of education and knowledge, has been recently published in the United

Report on Art Education in America, with special reference to the introduction of drawing as one of regular studies in the courses of the public free schools, by Mr. J. Edward Clarke, of the Bureau.

The second part of General Eaton's exhibit was both novel and curious; and to any one who sympathized with the fast-disappearing red man, it was impressive. It consisted of practical and interesting illustrations of what the United States is now doing towards bringing the civilizing influences of Christian Education to bear upon the Indian tribes. General Eaton kindly devoted some time in explaining to me the various details of the system or scheme of Indian education, in which he felt so deep an interest. He pointed out from the various illustrations and examples in the collection, how remarkably successful had been the efforts of the Government as far as they had gone, in demonstrating the entire feasibility of bringing the Indian tribes under the potent influences of the semi-domestic and Christian home-like influences of the various mission schools in active operation among them.

As to the nature of the exhibit, a correspondent of the *New York Tribune* in speaking of it, says:—

"The schools of the Indian Territory have made a very creditable display. They have sent photographs of their school-houses, prominent teachers, and representative pupils, and exhibit specimens of text-books, chirography, needlework, drawing, etc. The wonderful progress which even some of the wilder tribes of Indians have made in a few years' residence in the Indian Territory, as shown in this exhibit, demonstrates the wisdom of an Indian policy that removes the savages from the demoralizing influence of frontier settlements, and places them under direct civilizing influences. The Modocs, even, who a few years ago, from their fastnesses in the lava beds, defied the power of the United States, and spread terror throughout a whole region, are now rapidly learning the arts of

States. It is a special report (in two parts), on the public libraries of the United States of America, their history, condition, and management. This voluminous and most interesting report, has just been issued by the indefatigable United States Commissioner of Education, General Eaton, from his Bureau at Washington. Through the courtesy of General Eaton, these Reports have been sent to the Education Department of the various Provinces, for distribution to the colleges and public institutions of the Dominion.

"It would be impossible in our short notice to do justice to a report on libraries so comprehensive and compact as this one is. It embraces a discussion, statement or illustration of almost every topic relating to libraries—their history, management, and usefulness. Its compilation does the greatest credit to the zeal, patience and ability of the Commissioner and his able co-editors, Messrs. Warren and Clark. Many of the papers are written by the editors, but several are contributed by various noted librarians in the United States. The work is divided into forty chapters, embracing among other subjects, a sketch of "Libraries one hundred years ago," an account of the School, College, Theological, Medical, Law and Scientific Libraries in the United States. It contains also, papers on Libraries of the General Government, Historical, Mercantile, State and Territorial Libraries; those in Asylums, Prisons and Reformatories, as well as papers on Copyright, Distribution, Exchanges; How to make Town Libraries useful; Art Museums and their connection with Public Libraries; Free Libraries and Reading Rooms; Library Buildings; Organization and management of Public Libraries; College Library Administration; Public Libraries and the Young; Library Catalogues and Cataloguing; Book Indexes; Indexing Periodicals and Miscellaneous Literature; Binding and preservation of Books; Works of References for Libraries; Titles of Books; Library Bibliography; Reports and Statistics, &c. Part II contains an elaborate series of Rules for a printed "Dictionary Catalogue of Libraries," with illustrations of the method. In referring to this Province, the Editor says:—

"A brief account of the excellent School Library system of Ontario, will be found in Chapter II. . . . An examination of the revised catalogue published by the Department of Education, shows that great care has been exercised in the choice of books, and that a judicious selection from it would form an excellent library in all departments of literature for adults, as well as for pupils in the Public Schools."—Page 30.

civilization, and their schools make a very creditable display in the Centennial Exhibition."

Mr. A. Tolman Smith, a noted American educationist, in referring to this interesting portion of the Commissioner's exhibit, writes to the *New England Journal of Education* as follows:—

"Of its many subjects presented in the exhibit of Education in the United States Government Building, none attracted more attention than that of Indian education—never so suggestive, never so imperious in its demands upon our solemn consideration as at this moment.

"The two cases, however, illustrating Indian education are but a fragment, a torn leaf, by themselves. Place them in sequence with the United States Survey and Indian exhibits in the same building; begin with models of ruined cave-towns, cliff dwellings and towers; pass to the models of these restored; run through the pottery and stone relics of a race unknown, and a date unchronicled; pass through the archaeological, ethnological, and ornamental relics of Indians, wrought before the shadow of the Spaniard fell athwart the land; then follow, step by step, the representation of contemporary, but savage tribes, through the comprehensive exhibit of their implements, their industries, ornaments, superstitions, dress, their very faces, and daily haunts, and domestic life, photographed with unerring exactness—trace the slow mingling of savage handiwork, with the acquired arts of the Saxon race, and come then to the cases representing the results of Indian education, under the fostering care of Christian intelligence, and you have the history of the aborigines of America; a far-reaching, eloquent, imperishable record.

"We will not, however, rest content with the general import of the Indian exhibit, but pause to gather some of its practical lessons. In the first case of antiquities is a series of flint arrow-heads; these primitive missiles were, at first, perfectly plain at the blunt edge, and must have been fastened with no small difficulty to the handle; gradually a change is noticeable, a slight depression appears in the blunt edge, and finally an indentation on either side which securely held the sinew that bound together handle and weapon. Something of the same slow growth of thought is apparent through the school exhibit.

"In the same case with the writing are specimens of the handiwork of pupils. You may hold in your hand a bit of patch-work sewn by an Apache girl, nine years old; a year ago, the women of her tribe, sunk in savage squalor and apathy, knew no finer art than the fashioning of skins with strings of sinew, and bone needles pushed in and out after the manner of an awl. This patch-work, like nearly all the primary sewing, was done without the thimble, one implement at a time being as much as they can master; so it is first the needle, then the thimble, still step by step, as in the old days of arrow-heads and bone needles. But the little Apache's patch-work is by no means the present limit of sewing. In the same case are aprons, skirts, quilts, and that triumph of feminine domestic art, the plaited shirt-bosom, hand-made and machine-made, by Modocs, Dakotas, Choctaws, Creeks, and Cherokees. Instinctively, as you view them, your thoughts run over to the needlework album in the Massachusetts exhibit, and the two simple works assume a subtle relation to the coming brotherhood of races.

"The general conduct of the 'Manual Labour Schools' can be understood by an account of the Tallahassee school. The institution has a fine farm adjoining; both sexes are admitted to its care, and while receiving the same class instruction, are at once initiated into their appropriate industries. The girls are trained in sewing, house-work, the management of the dairy, etc.; the boys work the farm, and acquire the management of ordinary tools. This industrial training, joined with the direct development of the purely mental faculties, is in vital relation to all the future of these transforming races.

"Without this, education for them would be merely a revolution of mental condition, the substitution of discontent for apathy, of effete thoughts for savage activities. This training simply directs these activities into channels adapted to civilized, intelligent life. Thus said 'Running Chief' of the Pawnees: 'Following the plow will give me that active exercise which I used to get on the hunt; formerly the only way for a Pawnee chief to make his mark was to kill a good many of his enemies; to-day the only way is to become a great farmer, a great mechanic, or perhaps a great lawyer.'

"The exhibit of the direct results of the school-room training in these cases follows the general course. The most advanced studies represented in examination papers are geography, history, English composition, book-keeping, and algebra. The papers I examined gave a fair percentage of correct work. The report of an oral examination in grammatical analysis, conducted in a very rigid manner, showed 95 per cent. of correct answers. In ranking these varied results, we should forego unjust standards; they must be valued, in every instance, by their historic meaning rather than their comparative excellence or compass. The group of manual-labour schools, of which Tallahassee has been taken as the representative, has only a twenty-five years' record; thus it appears that, as yet, *time* hardly enters as a factor in the results.

"We ought not to close a notice of the Indian exhibit without a moment's attention to its most impressive feature. Upon the walls assigned to the geological-survey section is a series of photographs, representing the untamed savage of the plains, in his varied haunts and costumes. In the midst of the Indian education cases is a second series, representing pupils and graduates, and parents who have caught only the reflected influence of training. The countenance, the attitudes, are transformed: the savage has become a man. No one can escape the eloquent, forcible lesson conveyed in these contrasted pictures of Indian humanity."

PROGRESS OF EDUCATION IN THE UNITED STATES.

It may be interesting in this connection to give the following brief historical sketch of the condition and progress of education in the United States as a whole. In his opening address at the meeting of the National Educational Association in Baltimore, July, 1876, the President, Mr. Phelps, said:—

"Prior to 1776 but nine colleges had been established, and not more than five of these, we are told, were in a really efficient condition. Now more than four hundred institutions bearing the titles of 'college' and 'university' are distributed throughout forty of the States and Territories, with nearly 57,000 students and 3,700 Professors and teachers. Then little was done for the higher education of women. Now there are 209 female seminaries, with 23,445 students and 2,285 teachers. Then, says a writer in the *New England Journal of Education* for June 10, 1876, professional schools were almost unknown. The candidate for the honours of the law, the dignities of the ministry, and, generally speaking, for the toils of medical practice, was obliged to pursue his studies under private tutors. Now there are 322 professional schools of the various classes, excluding teachers' seminaries, with 23,280 students and 2,490 instructors. Then Normal Schools had no existence on this continent. Now 124 are reported in the United States alone, with 24,405 students and 966 instructors. Then there were no commercial colleges; now 127 are in operation, with 25,892 students and 577 teachers. Then secondary and preparatory schools had scarcely a name by which to live; now 1,122 are said to exist, affording instruction to 100,593 pupils, and giving employment to 6,163 teachers. The Kindergarten, that last and best of educational inventions, is a very recent importation. In 1874 we were blessed with fifty-five of these human nurseries, with 1,636 pupils and 125 teachers. May their numbers rapidly increase.

"We have no means of giving the school population of those earlier days. It is not likely that it was ever ascertained. Now thirty-seven States and eleven Territories report an aggregate of more than thirteen millions, or more than four times the total population of the country in 1776. Then the school enrolment was, of course, unknown. Now it amounts to the respectable figures of 8,000,000. Then the schools were scattered, and their number was correspondingly restricted. Now they are estimated to number 150,000, and as employing 250,000 teachers. The total income of the public schools is given at \$82,000,000; their expenditure at \$75,000,000, and the value of their property at \$165,000,000. The figures thus far exhibited seem to indicate what we have done; there are others which tell us with impressive emphasis that which we have not done. With a school population of 13,000,000, as reported, we have an actual enrolment of but 8,000,000. The number of illiterates by the census of 1870, above the age of ten years, was, in

round numbers, 5,500,000. Of these more than 2,000,000 were adults; upward of 2,000,000 more were from fifteen to twenty-one years of age, and 1,000,000 were between ten and fifteen years old. Of the number between fifteen and twenty-one years it is estimated that about one-half have passed the opportunity for education, and since it is well understood that a large proportion of the children in this country leave the schools perhaps at an average age of ten or twelve years, the conclusion is irresistible that tens of thousands of those who are reported as illiterates between ten and fifteen years of age will forever remain so. Of the 930,000 illiterate persons between fifteen and twenty-one years of age who have passed their opportunities for instruction, 137,000 are in the Northern States, 15,000 in the Pacific, and 778,000 in the Southern."

The *Educational Weekly*, published at Chicago, gives the following interesting statistics, illustrative of the foregoing facts stated by Mr. Phelps:

"Of the persons over ten years of age who cannot read, we have, in the different sections of the United States, the following percentages:—

	Total Pop.	Unable to read.	Per cent.
Eastern and Middle States,	12,303,564	478,606	3.8
Western States,	12,023,629	409,175	3.4
Southern States,	13,878,435	3,550,425	25.5

"As to the voting population, the figures stand as follows:—

	Voters.	Unable to read.	Per cent.
Eastern and Middle States,	2,747,694	223,592	8.
Western States,	2,644,879	217,403	8.
Southern States,	2,914,736	1,137,303	39.

"The expenditure for education, in the three sections as above, in 1873, were: In the Eastern and Middle States, \$32,451,601; in the Western States, \$34,828,628; in the Southern States, \$11,176,344.

"The following comparison will prove very suggestive. It is between states of nearly equal population, north and south:—

	Population.	Expenditures for Education.
New Jersey,	906,096	\$2,471,343
Alabama,	996,992	490,604
Iowa,	1,194,020	4,229,452
Georgia,	1,184,109	223,660

"The foregoing statistics show the present status of illiteracy, that which we subjoin shows our prospective condition, unless our efforts for the diffusion of education are prosecuted with redoubled energy. The first statement shows the number of children between five and eighteen years of age in the whole country; the second the school attendance, and the third the percentage of non-attendance. For these statistics we acknowledge our indebtedness to a masterly speech of Hon. Henry W. Blair, of New Hampshire, in the House of Representatives, on Saturday, July 29, 1876. Their entire accuracy may be relied upon, since they have been carefully compiled from the latest returns in the Bureau of Education at Washington.

SCHOOL POPULATION.

	White.	Coloured.	Total.
Males	5,264,635	814,576	6,086,872
Females.....	5,157,929	806,402	5,968,571
Total.....	10,422,564	1,620,978	12,053,443

ATTENDING SCHOOL.

	White.	Coloured.	Total.
Males.....	3,326,797	88,594	3,415,391
Females.....	3,087,943	91,778	3,179,721
Total.....	6,414,740	180,372	6,595,112

NOT ATTENDING SCHOOL.

White.	Coloured.	Total.
4,007,824	1,440,606	5,448,430

"From the above, it appears that of the white children of the whole country, between the ages of five and eighteen years, 38 per cent. are not attending school; of the coloured children, 88 per cent. are not attending, while an aggregate of 45 per cent. of both classes are not under instruction.

"We close this exhibit with a statement of the *per capita* amounts raised by taxation for educational purposes by certain States during the year 1875.

Arkansas.....	\$ 62
Georgia.....	1 10
Tennessee.....	1 64
South Carolina.....	1 70
Virginia.....	1 93
Maryland.....	5 01
Montana Territory.....	8 42
Massachusetts.....	22 00

"General Eaton's Report, just issued, shows a total school population in thirty-six states and eight territories, excluding Delaware, the Indian Territory, New Mexico, and Wyoming, as not reported, of 14,007,522. The total enrolment of pupils in the public schools of all the states is 8,756,659. The total number of teachers reported is 249,262. In Alabama, Delaware, Kentucky, Nevada, and Texas, the same salaries are paid for the same work to men and women teachers. The total income for public schools in all the states and territories, except North Carolina, Idaho, Washington, and Wyoming is \$88,648,950. The total expenditures for public schools in the Union, excluding Delaware, Georgia, Missouri, Idaho, and the Indian Territory, not reported, is \$81,932,954. The value of school property reported from twenty-nine states and six territories is \$173,833,545. Statistics are given of 137 normal schools, with 1,031 instructors and 29,105 students. Fourteen normal schools, including the one in Michigan, each receive an annual appropriation exceeding \$17,000. Reports exhibit from 131 commercial and business colleges, 594 instructors, 26,109 pupils, and 19,099 volumes in their libraries. There are 95 kindergarten schools of which information is given. These have 216 teachers and 2,809 pupils. There is an increase over the number reported last year of 40 schools, 91 teachers, and 1,173 pupils. Forty-one schools for the deaf and dumb are reported. These have 293 instructors, 36 of whom are semi-mutes, and 5,087 pupils. There are 29,640 volumes in libraries; value of grounds, buildings, and apparatus, \$6,136,815; amount of State appropriations during the year, \$1,049,524; amount received from tuition fees, \$94,520. Twenty-nine schools for the blind, with 498 instructors and other employes, and 2,054 pupils, report. The value of grounds, buildings, and apparatus is \$3,893,467; appropriations during the year, \$551,786. A statistical table affords information of 278 other institutions, classed as follows:—Orphan asylums, 154; soldiers' orphans' homes, 17; infant asylums, 12; miscellaneous charities, 71; industrial schools, 24. The number of inmates reported in these institutions is 54,204, under the supervision of 1,789 teachers and officers. The income reported for last year was \$2,794,264; the expenditure \$3,633,687. Eighteen states and the District of Columbia report 47 Reform Schools. Reports were received from nine schools for the feeble-minded. The whole number of inmates is 1,372, under the supervision of 317 instructors and other employes. The Commissioner remarks

that the effect of the financial depression throughout the country is seen in the reduction of the amount of benefactions for educational purposes during the year now closing, the total being \$4,126,562. In 1874 it was \$6,053,304, and in 1872, \$11,226,977. In educational benefactions, Pennsylvania stands far before the other states for the past year, showing the amount of \$810,672. The nearest to this is New Hampshire, with \$475,760.

VIII. THE NATIONAL EXHIBIT OF FRANCE AT PHILADELPHIA.

Although the educational exhibit of France was very meagre at Philadelphia, it was nevertheless of superior excellence at Paris in 1867, and at Vienna in 1873. (To this matter I have already referred on pages 2 and 3 of this Report.) In her national exhibit, however, in the special department of civil and military engineering, her entire collection and the special examples of ingenuity and skill which she showed, exceeded in excellence and variety those of any other nation represented at the Centennial Exhibition.

Like the United States she had a Building of her own (although a small one) near the north-eastern entrance to the grounds, built of red brick, relieved with black, reminding the visitor of old buildings in France.

As the collection in this building was, to some extent, a counterpart of portions of that in the United States Building, it is appropriate to refer to it here in connection with the remarks respecting that building. This is the more appropriate as the contents of the French building were of much interest to educationists and scientific men. They embraced (as enumerated by M. Simonin, in the *Revue des deux Mondes*,) objects sent by the French government to M. Lavoigne, engineer of roads and bridges—who had charge of the exhibit, including:

"Models and designs of bridges, viaducts, aqueducts, lighthouses, jetties, dikes, canal locks, railroad station buildings (*gares*), and innumerable maps, including a large geological chart of France."

In addition to these, as intimated in the *Pennsylvania School Journal*, there was "a handsomely framed chart, about twenty feet square, showing the lines of communication of France, and forming a very interesting study. The lines are divided into terrestrial, fluvial and maritime. The terrestrial comprise the roads and railways, and the fluvial embraces the navigable rivers and canals. The national roads are represented by dark brown lines, the department roads by a narrower line of the same colour, while the railways are marked by white lines, and the rivers and canals by blue. A conventional representation of the mountains show the summits of water-sheds, and the large rivers occupying the intervening valleys. The principal lines of maritime navigation are figured by gold lines, while the depths of the sea, from one hundred to one thousand metres, are shown by lines of red. The country is painted green, set off in pretty contrast by semicircles of light all around the coast marking the illuminating ranges of the different lighthouses on the coast. The chart also includes the chief towns and cities, properly marked by brass buttons.

"To the right of the entrance to the building is placed a number of surveying instruments, mining tools, and civil engineering instruments generally. Over the door is a fine representation of the bridge Du-jour, at Paris, crossing the Seine. In connection with it three models are shown, made on a scale of one twenty-fifth, one representing the viaduct entire, another an abutment arch, and the third two arches of the viaduct from the Versailles road to the quay on the right bank of the Seine. To the right of it is a well-executed picture of the canal of Marseilles and the bridge of Roquefaveur, illustrated also by a handsome model of three arches, about twelve feet in height, while on the opposite side is a view of the Port Launay viaduct on the Aulene. A large model is also shown of three arches and four piers on a scale of one twenty-fifth. The bridge was constructed

for the railway from Chateaulin to Brest, and comprises twelve arches of twenty-two metres span.

"Next come drawings and models of lighthouses, showing sectional views, the foundation bed, and other interesting points. On the first of January last the number of lighthouses on the French coast amounted to three hundred and seventy-nine, not including those of Algeria. The first of the drawings and models represents the lighthouse of La Croix, erected a distance of two thousand metres from shore. There is also a fine illustration of the lighthouse at Cape Spartel, south of the Straits of Gibraltar, a very dangerous point, and where, previously, many vessels had been wrecked and many lives lost. The edifice consists of a tower, of which the exterior is square and the interior circular. Plans, drawings and models are then shown of the lighthouse of Creach, at the eastern extremity of the Island of Quessant, of Triagnon, of Royan, and several other places.

"The viaduct of Dinan on the Rance is nicely illustrated by a large model of three arches. The bridge is 315 metres in length, and the archway 41.30 metres above the level of the canal, and the whole bridge consists of ten semicircular arches of 16 metres span. The model is perfect in all its details, and shows great skill and ingenuity in its construction. There is also exhibited an excellent model of the bridge of Arcole on the Seine, on a scale of one twenty-fifth. This bridge comprises only a single span of 80 metres. It is composed of twelve ribs, of which the ten intermediate are 1.33 metres apart, and the two outside ribs are 2.50 metres. These ribs are made up of three parts—an arch, a string piece, and a rigid spandril uniting the arch and string piece. The next model of interest is that of the swing bridge at Brest, together with a model of the tower and its mechanism and a fine view in perspective of the port of Brest. Besides these there are excellent drawings and models of the bridge of St. Sauvan, the iron viaduct of Busseau D'Abunau, the Creuse and the iron viaduct on the Bouble. After these came specimens of steel nails, lamps and appliances for lighthouses, apparatus for electric light, and numerous portfolios of lithographic drawings, and photographs of railway depots, stations, rolling stock, &c. Among the more interesting of the charts, plans, and drawings, which adorn the western wall, is one showing the improvement of the Seine, from Rouen to Havre. It is drawn on a scale of 1.60000, and is executed in excellent style. Another drawing represents the line of navigation between Paris and Auxerre, also an excellent geologic chart in detail of France, and a plan showing the deposits of phosphate of lime. Then there is a model in stone, wood, iron, and bronze, of the lock of the port of Dunkirk, representing the great lock with gates and swing bridge. The lock is 21 metres in breadth, and is calculated for ships of the largest tonnage. The port of Marseilles is illustrated by a large perspective view, together with a model showing the extent of basins and swing bridge. Numerous models of other bridges, &c., are also exhibited, showing the depth of water, the state of foundations, and forming altogether a valuable display for aid of the student.

In the matter of education and educational appliances, France did not do herself justice. There were, as intimated in the *American Bookseller* for April 1st.—Some models of school-seats, a few reading charts, maps, models of battle-fields, etc. The Industrial School of St. Quentin sends some interesting specimens of embroidery and sewing, and beautiful and unique designs for various fabrics. This is the most important school of the kind in the north of France, and is supported by the manufacturers, and the people of the Department of Aisne. Paris shows a dozen portfolios of art work from its higher schools, among which are some elegant specimens. Erhard's wall-maps, published by Hachette & Co., are particularly noticeable for their correctness and beautiful execution. There are samples of the school writing-books of Aug. Godchaux & Co., and other text-books used in the schools, as well as others of various grades. In the Book Department are also to be found many books which throw light upon the nature of the work done in the schools."

STATE OF EDUCATION IN FRANCE.

In conversation with M. Buison, Chairman, and M. Berger, Member of the French Educational Commissioners to the Philadelphia Exhibition, I learned that since the recent

war, France has been thoroughly aroused to the necessity for greater activity for the promotion of popular education. No official reports have, I believe, since the war been published. A late number of the *Journal des Débats*, however, furnishes sufficient information on the present state and prospects of education in France, it says :—

"France has made especially within a few years, enormous progress by the diffusion of primary instruction. Under the empire M. Durny had given a great impulse to this public service. Since our disasters the Departments and Municipalities have redoubled their efforts. The sacrifices made for our Schools have increased considerably. In his report upon primary instruction at the Vienna Exposition, M. Levasseur estimated at 71,000,000 francs the expenditure of France for this branch of education ; M. Baideux states it at 85,000,000 francs, of which 25,000,000 are furnished by the State, 41,000,000 by the Departments and Communes, and the remainder by families. Adding the expenditures for higher branches of education, and the other items that help to swell the list of expenditures, one may calculate the total expenses for educational purposes in France at 150,000,000 francs. There has, then, been much progress made, but there still remains much to do ; the increase of the salaries of teachers, of the number and efficiency of the Schools, of the public libraries, etc.

"Normal Schools require particular attention, so that capable teachers may be provided, and the credit for this branch in 1877, will be increased 100,000 francs. New primary schools are to be opened. In 1864, there were 1,800 *Communes*, where no school existed ; and there are still too many unprovided, or not sufficiently supplied."

In referring, however, to the comparative expenditure in France and the United States, on behalf of education, M. Simonin, in a late number of the *Revue des deux Mondes*, says :—

"In France we give an annual amount equal to scarcely \$10,000,000 for public institutions, while the State of New York alone, with less than five millions of inhabitants, expends yearly for popular education as much as all France."

IX. EDUCATIONAL EXHIBIT OF THE STATE OF MASSACHUSETTS.

Next to that of Pennsylvania, the most complete and systematic "Exposition" of the educational condition and resources of a sister State of the Union, was that of "the old Bay State" of Massachusetts. It was worthy of a land whose Colonial history and traditions are so inseparably bound up with the subjects of popular education and enlightenment. As the leading State of New England, she proved herself in educational matters at the exhibition to be in every way worthy of that pre-eminence, and of her noble parentage in enlightenment and intelligence, which she derived from old England herself. True to these instincts and traditions, she, as one of the older States of the original thirteen, has built her educational structures, on the whole, more substantially and securely than any of them, and that too, upon the broad educational basis which was laid in old colonial times ; and to-day, as in these early times, she is still in the van of her sisters in the educational race which they, together with her, are so assiduously running just now.

A writer in the *North American Review* for October, 1875, says :—

"It was in the year 1636, only six years after the arrival of Governor Winthrop and his colony, that the General Board of Massachusetts voted £400, (a sum, according to our authority, equal to a year's rate of the whole colony), towards the erection of a college. It is of interest to note that this was two years before the Rev. John Harvard gave to the college his name, by leaving to it half of his estate, and the whole of his library.

The present President of the new John Hopkins University at Baltimore, speaking

in the "Centennial number" of the same *Review*, of Harvard and eight other Colleges founded in the early Colonial times, says:

"The institutions were colleges of an English parentage and model, not Scotch nor continental universities."

The same writer, in speaking of the pre-eminence of Massachusetts in educational zeal in the old Colonial times, says:

"We shall not even attempt to distribute among the original colonies which constituted the Union of 1776, the honours which they may justly claim for an early devotion to the interests of education; but among all the official records there is none more worthy to be held in perpetual remembrance in the Republic than an order which was adopted in Massachusetts, November 11th, 1647. Its language will never be forgotten; its spirit is still vital in every part of the country. Its words are these:—'It is therefore ordered, that every township in the jurisdiction, after the Lord has increased them to the number of fifty householders, shall then forthwith appoint one within their town to teach all such children as shall resort to him to read and write, whose wages shall be paid either by the parents or masters of such children, or by the inhabitants in general, by way of supply, as the major part of those that ordered the prudentials of the town shall appoint; provided those that send their children be not oppressed by paying more than they can have them taught for in other towns. And it is further ordered, that when any town shall have increased to the number of one hundred families or householders, they shall set up a grammar school, the master thereof being able to instruct youth so far as they may be fitted for the university; provided, that if any town neglect the performance hereof above one year, that every such town shall pay five pounds to the next school till they shall perform this order.'

"Here," the writer says, "is a plan involving local responsibility; state oversight; moderate charges or gratuitous instruction; provision for all and not for the poor alone; a recognition of three harmonious grades,—the primary school, the grammar school, and the university."

General Eaton, in commenting in his report for 1875, on this comprehensive provision of the old educational law of Massachusetts, says:—

"Here is a philosophical recognition of the subdivision of instruction into elementary, secondary, and superior. The whole State, or colony, through its Legislative power, provides the method and makes the duty obligatory upon the [Municipality] to sustain elementary and secondary instruction, while the State itself makes appropriation and requires proper aid for all the university. The whole property is taxed for all the children in the different grades. It is not amiss here to note the wide effect of this action.

"Maine, as is well known was a part of Massachusetts until it became a State.

"The methods of the colonies of Connecticut were closely in harmony with those of the Bay, and Roger Williams, though escaping to Rhode Island, did not leave behind the excellencies of the Institutions already founded; so that it is simply a statement of truth to affirm that this action of Massachusetts colony substantially shaped the educational Institutions of New England."

As to the parentage and present characteristics of the system of popular education adopted by the various states of the Union, the same writer in the *North American Review*, to whom I have already referred, remarks:—

"From its New England birthplace, the common school has gone to every State and Territory. In its main features, the system is homogeneous throughout the continent. It is based on local responsibility and State supervision, supplemented by the co-operative agency of a national statistical bureau of education. The system is elastic, being sometimes restricted to primary schools, and sometimes expanded to include the schools of every grade, not excluding the University. Instruction is free, unsectarian, non-partisan, and open to all, without distinction of race, birthplace, or social standing."

As the "birthplace," therefore, of the "New England idea" of the "Common School," it was expected that the school exhibit from Massachusetts would be superior to all others

—superior, not only in material, but in all those appliances and details of an elaborate school system which indicate completeness and comprehensiveness in the State scheme of education. In most if not all of these respects, Massachusetts came up to the standard expected of her. The various grades of her educational Institutions, from the village school up to (in part) their time honoured University were well represented. In order to secure this effectively, she took the precaution to appoint a competent committee to select the material of the exhibition. A brief statement of the result of their labours, and a comprehensive sketch of the whole exhibit displayed in eight rooms of the east gallery of the main building was published in a pamphlet, from which we make the following extracts :

The Committee say :—

"The duty of preparing the exhibit in this department was assigned to the State Board of Education by the Centennial Commissioners, with the approval of the Governor of Massachusetts and Council.

"In the performance of this duty the Committee have endeavoured to present to the eye, through exhibits, some of the newer phases of our educational system, and to supplement those exhibits by reports, giving a general history of education from the settlement of the State, and illustrating the several departments included in this exhibit.

"The exhibits relate principally to our Public Schools, Technical Institutes, Women's Colleges, Normal Schools and Free Public Libraries, and are intended to show the systems adopted and results obtained.

"PUBLIC SCHOOLS.—The exhibits are contained in 289 bound volumes of scholars' work, from—schools in 35 towns and cities in the State. They are from the Primary, Grammar and High Schools, and were intended to illustrate methods of teaching and handling subjects by showing on paper actual class work, and to show the standard of scholarship attained in different institutions, grades, and classes through examination exercises.

"Most of them were prepared for the Exhibition, and the results obtained by our system of instruction are fairly exhibited, and show the attainments and the general proficiency of the pupils in the different grades of schools.

"Under the same system, different results are obtained in various parts of the State. We have, therefore, obtained three representative exhibits : from Greenfield in the western part of the state, an agricultural town of the second rank in population ; from New Bedford in the south-east, a manufacturing and commercial city of the second rank in population ; and Boston, the metropolis.

"They exhibit the text, reference and reading books, charts and apparatus, scholars' work of the different grades of schools, plans and photographs of some of the school buildings, with full reports and statistics of the schools.

"Greenfield and New Bedford make very complete and collective exhibits, and attention is especially called to them, as they are believed to excel anything of the kind in the Exhibition. A catalogue of the New Bedford Exhibit has been prepared.

"The Boston Exhibit includes :—

"1st. Drawings from the Primary, Grammar, High and Evening Schools.

"2d. Scholars' work on slates, including Writing, Drawing of Primary Schools, scholars' work from the Primary, Grammar and High Schools, bound in 104 volumes.

"3d. A case of Philosophical Apparatus, as a sample of the set furnished to each of the fifty Grammar Schools.

"4th. A case containing the text-books used in the Primary, Grammar and High Schools, and the reference books furnished to each of the Grammar Schools.

"5th. Six portfolios of sewing from the Grammar Schools ; one from the Shurtleff School, showing an analytic and progressive course of instruction ; and one from the Winthrop School, containing a dress cut and made by its pupils. A sketch of the history of sewing in the schools, in the report of the Superintendent for 1874.

"6th. A catalogue of the collection of casts in the Girls' High School, claimed to be the best of the kind in the country.

"7th. The Public Day School for Deaf Mutes, which is believed to be the only one of the kind in the country, and the first in which "visible speech" was applied to the instruction of the deaf. A sketch of the school in the Superintendent's report for 1874.

"8th. Four frames with plans and views of a school-house, embodying features of German School architecture, presented as the best specimen in the country.

"9th. A complete set of Boston School Reports from 1852 to 1875.

"10th. Statistics of Public Schools of the City of Boston, for the school years 1874-5."

"There is also exhibited the Reports of the Board of Education, in 26 vols., from 1837-1875, and a complete set of the annual School reports of the 341 cities and towns of the State, for 1875; bound in 12 volumes with the School Laws.

"These Reports are of great interest in themselves, as furnishing a history of education in the State for the last forty years, and the systematic method in which the town reports are made under the supervision of the Secretary of the Board. A similar collection was made by Mr. Philbrick, for Vienna, and attracted great attention.

"DRAWING.—Instruction in Drawing was made obligatory in the Public Schools in 1870; and cities and towns containing more than 10,000 inhabitants were required to give free instruction in industrial drawing to persons over fifteen years of age. Mr. Walter Smith was appointed Director of Art Education, and the system prepared by him has been adopted by the Board of Education, and very generally carried out in the Public Schools.

"The drawings of the Primary, Grammar and High Schools are shown on the walls of the first room; industrial drawing of the evening classes in the second room, and drawings from each in many portfolios in the third room.

"A Normal Art School was established. The pupils are divided into four classes, and the work of each class is exhibited on the walls of the third room and in portfolios. A special catalogue of these drawings has been prepared, and they are so arranged that the gradual development of the pupils may be traced from the Primary through Grammar, High and Evening Schools to the Normal Art School. Many Drawings from different schools and towns were sent to an exhibition held in Boston in May, and the best of these were selected by a Committee for the Centennial, and are those on exhibition.

"PRIVATE SCHOOLS.—Between thirty and forty years ago, there were many Private Schools and Incorporated Academies in the State. Their place has been to a great extent supplied by better Public Schools, and by the introduction of free High Schools, which have taken the place of incorporated academies, excepting in those places where some peculiar advantages in the instruction were enjoyed, as at Phillips' Academy at Andover, or Williston Seminary, at East Hampton.

"There is no better proof of the excellence of our Common and High Schools than that they have taken the place of other schools.

"Private schools, though subject to the general control of the State, are not under the supervision of the Board of Education.

"They are exhibited by a few photographs of academies and school buildings. A very full and able report upon our Common and High Schools and Academies is in course of preparation.

"TECHNICAL SCHOOLS.—These are the Lawrence Scientific School, Museum of Comparative Zoology and Bussey Institution, all connected with Harvard University,—exhibited by a water-colour painting of Bussey Institution; by a series of drawings, illustrating the building and working rooms of the Museum of Comparative Zoology, and by an illustrated catalogue, in 8 vols., with maps and plates, designed among other things to show the results of the investigations carried on at the Museum,—by Theodore Lyman, L. F. DePourtales and Alex. Agassiz.

"Worcester Free Institute exhibits drawings of its beautiful building and workshop, 150 specimens and models in wood and metal, 180 drawings in civil and mechanical engin-

NOTE.—The value of school-houses in Boston is estimated at about \$8,500,000.

engineering, five tablets of the study and instruction, 22 bound volumes of examination papers and theses of the graduating class of 1876. Here the pupil is instructed by an able faculty in the different departments of Mechanics, Engineering and Design, and in the workshop applies the theory to practice, and becomes skilled as a workman in all the various departments taught in the lecture room. Reports have been prepared of its history, requirements for admission, and course of instruction, and a very full catalogue of the Exhibit. In its peculiar features, it is not excelled by any in the country.

"The Institute of Technology at Boston exhibits its departments of Mining and Metallurgy, Physics, Chemistry, Architecture, Civil and Mechanical Engineering, and students' work in each of these departments. Specimens from its Mining School, beautiful architectural designs, mechanical drawings, models, with theses of each member of the class graduated in June, 1876. The 550 drawings on the walls and portfolios and 47 theses will enable the Judges and Educators to form a more accurate knowledge of the merits of the Institution and acquirements of its students than could be obtained in any other way, and is a complete answer to the query so often made—"How can you make a satisfactory educational exhibit?"

"Documents descriptive of the work of the Institution and catalogues and reports have been prepared.

"Particular attention has been paid to the exhibits of these Institutes, as they present a new phase in the educational system of Massachusetts.

- "The *Agricultural College* at Amherst is exhibited in the Agricultural Department, and will well repay the attention of all who are interested in that subject.

"WOMEN'S COLLEGES.—The eldest of these Institutions, though it has never claimed the name of College, is Mount Holyoke Seminary, now in the thirty-ninth year of its existence, but as flourishing as at any other period of its history. It combines manual labour with educational training and religious instruction.

"Wellesley College, one of the most munificent donations of a single individual to any object, and the largest ever made to an institution devoted solely to the education of women, will ever be a lasting monument to Mr. Durant. It was established to give young women opportunities for education equivalent to those usually provided in colleges for young men. It is under christian influence, discipline and course of instruction. One hour a day the pupils aid in domestic work. It comprises a Preparatory and Collegiate Department. Exhibited by a beautiful water-colour painting, ground plans and photographs of its buildings.

"Smith College at Northampton owes its origin and endowment to Miss Smith of Hatfield, who left a large bequest to trustees to establish a woman's college at Northampton, imposing, as the sole condition, that the requirements for admission should be the same as at colleges for young men. It has no preparatory department. It was dedicated in July, 1875. Between one and two hundred pupils applied for admission, but only sixteen were received, and form its Freshman Class. Each of these exhibits have documents and reports giving the history, course of instruction and catalogues of the institution.

"NORMAL SCHOOLS.—Six in number. Their design is strictly professional, and none are admitted except on passing examination. One school is to prepare the pupils to teach drawing, the others to fit them for organizing, governing and teaching the public schools of the Commonwealth. The essential part of the instruction is the actual practice of teaching, under the eye and supervision of the teachers. It is believed that these schools differ from the Normal Schools of other States in requiring of the candidates for admission that they shall have acquired habits of application and study, that their characters shall be formed, and that they shall be well grounded in the rudiments required of teachers in the public schools. In other words, they are not schools for the teaching of general knowledge, or for the training of character, but are strictly technical or professional schools. They are exhibited by twenty photographs and drawings of the interiors and exteriors of each of the five schools; by circulars of the course of instruction, and by reports giving a full history and statistics of these schools.

"PUBLIC LIBRARIES.—In the early part of the present century, provision was made by law for the organization of Social Libraries. These answered the wants for fifty years, but as our common school system was extended, the value of libraries as a part of our

system of instruction became generally recognized. The necessities of something better than the Social Library led to the passing of an act, in 1851, "to authorize cities and towns to establish and maintain public libraries." One hundred and seventy-two city and town libraries have been established, total libraries, 1863, containing 3,000,000 volumes, and circulating annually 8,000,000 volumes.

"The largest free library in the United States is at Boston; the oldest at New Bedford. That of Boston has over 300,000 volumes, lends more than a million of books in a year, and is exhibited by seventeen volumes, giving its history, contents of the library, and its administration. It has seven branches, making it more accessible to the population. The Library of Boston, and some of the other city libraries, are open on Sunday, and very favourable results have attended the opening of them on that day.

"The Libraries at New Bedford, Springfield, Concord, Lynn and Worcester are among the more noted, and are represented by catalogues and photographs of the exteriors and interiors. A full and complete history of the Public Libraries has been prepared for the Exhibition by Mr. Horace E. Scudder, and contains much useful and valuable information.

"MISCELLANEOUS.—Perkins Institution for the Blind and Clarke's Institution for the Deaf are corporations supported mainly by private endowments, but receive yearly grants from the State proportioned to the number of pupils. They are classified by law with educational institutions, and are under the direction of the Board of Education.

"Perkins Institution, the earliest school for the blind in the country, was incorporated in 1829, and for many years was under the care of Dr. Howe. It is exhibited by several large volumes, printed at the school, by specimens of the work of the pupils, and by a complete set of its reports.

"At the Clarke Institution for the Deaf, and at the Deaf Mute School in Boston, the pupils are taught articulation and reading from the lips, dispensing almost entirely with the "sign language." They use the English language as a medium of communication between themselves and with others. It is exhibited by views of exterior and interior, and by reports specially prepared, giving a history of the Institution and of the system of instruction adopted at the school. "Visible Speech," which is used in this school and more or less in most of the other deaf schools of the country, is exhibited in ten volumes, prepared by Professor A. Graham Bell, and in six charts.

"The Educational Map of the State was designed by Mr. Philbrick, the Superintendent of Schools in Boston, and shows the diffusion of our educational system in every section of the State. The college is the foundation of our educational system. It was established in 1638, and was followed by the common school in 1647. The colleges have, from time to time, raised their standard of admission and graduation, and the grammar and high schools have made their course to conform. The college—though the creation of the State, and frequently aided by it—is an independent corporation, over which the State retains a visitatorial power to restrain and coerce, if it should depart from its normal course. The colleges have been controlled and governed by learned and judicious men, according to their views of the wants of the people, and have been the source and inspiration of our system of instruction, moulding and leading public opinion. Our system resembles the English rather than that of many of the Western States, where the common school is the foundation, the university the outgrowth and capstone; the whole moulded by public opinion, and dependent upon the State.

"The Massachusetts State Board of Education claim that its exhibit in "Educational systems, methods and libraries," stands the first,—

"A. In the systematic arrangement of the different classes in its group. From the limited space allotted to it, being compelled to give prominence only to those exhibits of present interest from their novelty and value, and showing the others by reports and catalogues.

"B. In furnishing evidence by its exhibits and reports that the educational system of Massachusetts excels in breadth and variety, beginning with the Kindergartens, continued through its Primary, Grammar and High Schools, to its Colleges and Universities, where equal advantages are offered to each sex, and thence through its Law, Medical and Theological Schools.

"C. In Drawing, starting with the principle that every child that can be taught to write can learn to draw, requiring drawing in its Primary, Grammar and High Schools; in teaching industrial drawing in its Evening Classes, and providing for the training of teachers in its Normal Art School.

"D. In its Technical Schools, educating the hand, eye and mind for industrial and scientific pursuits. In its Normal Schools, training its pupils solely for their chosen professions.

"E. In its free Public Libraries and Reading Rooms furnishing the means, which are largely used, to continue through life the culture of the faculties nurtured in youth.

"F. In showing an educational system more complete in the advantages offered to every age and class, and to each sex, and with a larger endowment and annual expenditure in proportion to population.

There is no question but that the Massachusetts Educational Exhibit was all that is here claimed for it, in regard to "systems, methods and libraries." It was planned in quite a philosophical spirit. Nothing appeared to have been admitted into the collection but what had either some special excellence, or peculiarity of its own. It was arranged also with great care and in systematic order. This rendered it highly attractive to educationists from abroad, and especially to those from the west and south-west of the continent, who, regarding Massachusetts as their educational *alma mater*, were still anxious to learn from her words of wisdom, and gather from her, lessons of deep practical experience.

From an official account of the Educational Institutions of Massachusetts we condense the following information:

STATISTICS OF EDUCATION IN MASSACHUSETTS, 1875-6.

Area of Massachusetts in square miles, 7,800.

Population, 1,651,912; in cities, 836,924; in towns, 814,988.

Valuation, \$1,840,732,706.

Cities, 19; towns, 322; total, 341.

Common Schools, 5,350; teachers, 8,269; pupils, 289,950.

High Schools, 212; teachers, 582; pupils, 15,826. 89 per cent. of population of State is in cities and towns having High Schools.

Pupils in Public Schools, 305,776.

Average length of time the Public Schools are kept open, 8 months and 17 days.

Evening Schools, 114; teachers, 364; pupils, 9,337.

State Normal Schools, 6; teachers, 59; pupils in Art School, 330; in other schools, 896; total, 1,226. Expenditure for, \$72,980.

Teachers' Institutes, annual average number, 8; average annual attendance, 1,063.

Incorporated Academies, 72; pupils, 5,756.

Private Schools, 341; pupils, 14,513.

Special State Institutions, 7; pupils, 1,687.

Libraries.—Free Public, 172; volumes, 1,069,508; yearly circulation, 3,068,335. Social, 237; volumes, 536,191; yearly circulation, 1,171,071. In Institutions, 178; volumes, 1,010,073; yearly circulation, 671,418. Sunday School, 1,276; volumes, 609,399; yearly circulation, 3,081,692. Total number of libraries, 1,863. Total number of volumes, 3,225,171. Total yearly circulation, 7,992,516.

Universities, 2; general students, 858; professional, 1,047; total, 1,905.

Colleges, 7; students, 1,076.

Professional Schools, 7; students, 194.

Scientific Schools, 3; students, 506.

Expenditure: total for Public Schools, \$6,201,614; for erecting and repairing school buildings, \$1,533,142; for each child of school age, \$21.

School Fund, \$2,065,238; income, \$167,655; moiety to cities and towns, \$83,827.

TABLE showing the increase in the valuation ; in the amount raised by taxation for the support of schools ; the number of children between the ages of 4 and 16, to 1849, and between the ages of 5 and 15, since that time ; and the amount raised for each child. The Table commences with the establishment of the Board of Education, in 1837, and gives the amounts, at intervals of ten years, down to 1876.

YEAR.	VALUATION.	Amount of Money raised by Taxes for the support of Schools, including only the wages of Teachers, board, fuel, and care of fires.	Number of persons between the ages of 4 and 16, to 1849, and between 5 and 15 years since 1849.	Amount raised by Taxes for each child between these ages.
1837.....		8387,124	177,053	82 50
1840.....	8290,878,329	491,015	184,392	2 66
1850.....	597,936,995	915,839	196,536	4 66
1860.....	897,795,326	1,475,948	231,480	6 37
1870.....	1,497,351,686	3,272,335	278,249	11 76
1876.....	1,840,732,706	4,400,898	305,776	14 39

Total value of School Buildings in 1838, \$550,000.

Total value of School Buildings in 1876, \$20,856,077.

STATE BOARD OF EDUCATION.—Established in 1837, consists of the Governor and Lieut.-Governor, and eight persons appointed by the Governor for a term of eight years, one retiring each year in the order of appointment. Holds in trust any grant or devise of lands, and any donation or bequest of personal property, made to it for educational purposes. Prescribes the form of school registers, and of blanks for school returns. Has charge of the State Normal Schools. Appoints a secretary, agents, the art-director, and the visitors and teachers of the Normal Schools. Makes an annual report to Legislature of its doings, with observations and suggestions, together with an abstract of the school returns. Incidental expenses of Board, and official expenses of members, paid out of income of school fund.

SECRETARY OF BOARD OF EDUCATION.—Appointed by Board. Salary, travelling, and office expenses paid out of income of school fund. Receives, arranges, and makes abstracts of school reports and returns. Collects information respecting condition of educational interests. Diffuses information to promote those interests. Suggests improvements to Board. Visits different parts of the State to awaken public interest in educational matters, and attends educational meetings. Conducts, by himself or agents, Teachers' Institutes. Sends blanks, registers, and reports of Board to towns and cities. Is a visitor of each of the State Normal Schools.

AGENTS OF BOARD OF EDUCATION.—One or more authorized by statutes, to be appointed by Board. Now, five in number, assigned to different sections of the State. Visit towns and cities ; observe schools ; confer with teachers and committees ; give advice and instruction in principles and methods of education, by lectures and teaching exercises ; hold institutes.

STATE DIRECTOR OF ART EDUCATION.—Appointed by Board of Education as one of its agents. Is at the head of the State Normal Art School ; superintends the instruction in drawing, and examines the classes in the State Normal School, and in the Free Industrial Drawing Schools of the cities and towns ; visits the cities and towns to confer with teachers and committees.

CITY AND TOWN SCHOOL COMMITTEES.—Elected by the people for three years, one-third retiring annually. Women are eligible. Have entire charge and superintendence of all public schools in town. Report annually in print to town, and make annual returns

to Secretary of State Board of Education. Receive a *per diem* allowance for services, the minimum of which is fixed by statute.

CITY AND TOWN SUPERINTENDENTS.—May be appointed by School Committee of town, if so ordered by annual vote. Compensation fixed by committee. May be appointed by school committee of a city, who may also fix the compensation. If a superintendent is appointed, the school committee receive no compensation. Superintendent works wholly under the direction and control of committee, and reports to that body.

COMMON SCHOOLS.—Established by voluntary action of towns in 1634. Made compulsory by law in 1647. Required in every town. Must be kept for six months, in number sufficient for all children. *Must* instruct in orthography, reading, writing, English grammar, geography, arithmetic, the history of the United States, drawing, and good behaviour. *May* instruct in algebra, vocal music, physiology and hygiene, agriculture, and sewing. Graded in the cities and villages; ungraded in the rural districts.

HIGH SCHOOLS.—Established in 1634. Allowed in every town, and required in towns of 500 families or householders. Are for the benefit of all inhabitants. Must be kept 36 weeks. Besides branches taught in common schools, instruct in general history, book-keeping, geometry, natural philosophy, chemistry, botany, civil polity of Massachusetts and United States, and Latin. A higher grade required in towns of 4,000 inhabitants. Besides branches previously mentioned, instruct in Greek, French, astronomy, geology, rhetoric, logic, intellectual and moral science, and political economy.

EVENING SCHOOLS.—First kept in 1836. Authorized by law, 1857. May be kept in any town for persons over twelve years of age. Do not take place of other schools. Are under control of School Committee.

STATE NORMAL SCHOOLS.—For instruction and training, only, of persons intending to teach. At Framingham, for ladies only, opened 1839; at Westfield, for both sexes, opened 1839; at Bridgewater, for both sexes, opened 1840; at Salem, for ladies only, opened 1857; at Worcester, for both sexes, opened 1874. A regular course of two years, in four terms of twenty weeks each, and, in addition, an advanced course of the same length; or, a single course of four years. Instruct, in regular course, in all English branches taught in the public schools; and in Greek, Latin, French, German, and higher mathematics in the advanced course. All these subjects are studied with reference to teaching them, and special instruction is given in the principles and methods of school organization, government, and teaching. Schools under general control of Board of Education; and each, under immediate supervision of a Board of Visitors, consisting of two members of the Board of Education, with the Secretary. At Bridgewater, Westfield, and Framingham, boarding-halls are connected with the schools, where students live at cost. Schools supported wholly by State. Tuition free. Normal Art School, established in 1873: object—to furnish trained instructors in industrial art to the towns and cities. Open to both sexes. Supported by State. Under control of Board of Education.

TEACHERS' INSTITUTES.—Authorized by statute. Held in various parts of the State by the Secretary and Agents of the Board of Education. Supported by income of school fund.

INDUSTRIAL DRAWING CLASSES.—Required in cities and towns having 10,000 inhabitants. Free to all the inhabitants. Under the control of school committee. Usually held in the evening.

SPECIAL STATE INSTITUTIONS.—Supported only in part by the State. State appropriates a gross sum annually to the Perkins Institution, and Massachusetts Asylum for the Blind, in which all the State pupils may be educated. To the Clarke Institution at Northampton, the Boston School for Deaf Mutes, and the American Asylum at Hartford, Conn., State pays a specified sum for tuition and board of each deaf mute sent as a State pupil. Required to report annually to Board of Education. To the School for Idiotic and Feeble Minded Youth, State appropriates annually. Schools under supervision of Board of State Charities. Pupils sent to all these institutions by Governor, on petition of parents or friends, accompanied by proper certificate. Number of Deaf Mutes, 168 of Blind, 159; of Idiots, 120.

REFORM SCHOOLS.—For boys, at Westboro. For girls at Lancaster. Received for minority on sentence by a magistrate for a statutory offence. Each school under control of a Board of Trustees appointed by Governor.

STATE PRIMARY SCHOOL.—For poor children dependent upon the State, because having no town settlement. Under a Board of Inspectors, appointed by the Governor.

TEACHERS' ASSOCIATIONS.—Membership voluntary. State Association receives, annually, \$300 from State. Each County Association receives annually, \$25, on condition of holding an annual session of not less than two days' duration. Fourteen counties in State. Eleven County Associations.

LIBRARIES.—Each city and town is authorized, by law of 1857, to establish and maintain a free public library, for the use of the inhabitants. May appropriate for buildings and founding library, not more than one dollar for each ratable poll. May appropriate, annually, to maintain library, not more than fifty cents for each ratable poll. Societies of seven or more persons, may be organized as corporations, to maintain libraries, choose officers, hold a limited amount of property, and assess the shares to raise money.

SCHOOL FUND.—Established in 1835. Amount, \$2,000,000. One-half of income divided annually among cities and towns, a part according to valuation; the remainder, according to number of children between 5 and 15, provided town has made required returns, and has raised by taxation for support of schools, not less than three dollars for each child between 5 and 15. Other half of income applied to expenses of Board of Education and its officers, Normal Schools, Teachers' Institutes and Associations.

SCHOOL ATTENDANCE.—Compulsory for children between 8 and 14, to the extent of twenty weeks, in two terms each of ten consecutive weeks. Towns and cities required to make by-laws concerning habitual truants, and to designate place of confinement and instruction. School committees required to appoint, and fix compensation of, two or more truant officers. Towns and cities authorized to provide for neglected children, under sixteen years of age.

UNIVERSITIES AND COLLEGES.—Harvard University, Cambridge; Harvard College, 1638; Medical School, 1782; Divinity School, 1814; Law School, 1817; Lawrence Scientific School, 1847; Museum of Comparative Zoology, 1859; Dental School, 1868; Bussey School of Agriculture, 1870.

BOSTON UNIVERSITY, 1869.—School of Theology, 1847; College of Liberal Arts; School of Law; School of Medicine; College of Music; School of Oratory; School of All Sciences.

MISCELLANEOUS.—Williams College, Williamstown, 1793; Amherst College, Amherst, 1821; College of Holy Cross, Worcester, 1843; Tufts College, Medford, 1854; Boston College, 1863; Smith College, Northampton, 1875, for women; Wellesley College, Wellesley, 1875, for women.

PROFESSIONAL AND SCIENTIFIC INSTITUTIONS.—Andover Theological Seminary, Andover, 1808; Baptist Theological Seminary, Newton, 1825; Tufts College Divinity School, Medford, 1855; New Church Theological School, Waltham, 1866; Episcopal Theological School, Cambridge, 1867.

MISCELLANEOUS.—Massachusetts College of Pharmacy, Boston, 1867; Boston Dental College, 1868; Massachusetts Institute of Technology, Boston, 1861; Massachusetts Agricultural College, Amherst, 1863; Institute of Industrial Science, Worcester, 1865; American Academy of Arts and Sciences, Boston, 1779; Boston Society of Natural History, 1831; Lowell Institute, Boston, 1839; Peabody Academy of Science, Salem, 1821; Worcester Lyceum and Natural History Association, 1852; Museum of Fine Arts, Boston, 1870; Massachusetts Historical Society, Boston, 1791; American Antiquarian Society, Worcester, 1812; New England Historical Genealogical Society, Boston, 1845.

STATE NORMAL SCHOOLS.—Framingham, 1839; Westfield, 1839; Bridgewater, 1840; Salem, 1854; Worcester, 1874; Normal Art School, Boston, 1873.

TEACHERS' INSTITUTES, 1845.

INDUSTRIAL DRAWING CLASSES.

SPECIAL STATE INSTITUTIONS.—Perkins Institution for Blind, Boston, 1829; School for Deaf Mutes, Boston; School for Idiots, Boston, 1848; State Reform School for Boys, Westboro', 1848; Clarke Institution for Deaf Mutes, Northampton, 1867; State Industrial School for Girls, Lancaster, 1856; State Primary School, Monson, 1866.

X. THE EDUCATIONAL EXHIBIT OF THE STATE OF OHIO.

Next to Pennsylvania and Massachusetts, the Ohio Educational Exhibit stands out as one of the best from any of the Western States. The system of education in Ohio has much in common with that of the other States. The chief speciality brought out in her exhibit was that of pupils' work in music, as pupils' work in drawing was the department in which Massachusetts so greatly excelled.

Like the educational exhibits from other States, that of Ohio consisted mainly of pupils' work, which was in great profusion and excellence. This work included specimens of penmanship, music, drawing, and written exercises in all of the various branches of instruction, from the lowest to the highest—many of them (nearly twenty volumes) in German, especially from Cincinnati. The coloured pupils' work, even in the higher branches sent from this city, was remarkably good.

In providing for the education of coloured children, Cincinnati has taken the lead, probably of any city in the United States. She has provided for them five primary schools, two intermediate, and one superior High School.

The specimens of penmanship from the various schools in the State, and notably from all of the teachers of the schools in Cincinnati, were excellent. The specimens of drawing by pupils in Cleveland and Columbus were also particularly excellent.

There were some points brought out in the Ohio exhibit to which I shall briefly refer :—

1. *Music*.—This refining and elevating "accomplishment," as it is justly called, is largely introduced into the Ohio schools, especially in the cities. It is indeed a mighty power for good among the pupils; and its softening and humanizing influence is felt to be potent for sensibly controlling the disposition, and drawing out the finer sensibilities and feelings of the heart. Judging from the specimens of pupils' work exhibited in this department, it is clear that unusual pains were taken to render the instruction effective, especially in Cleveland and Cincinnati.

The editor of the *Iowa Common School*, in speaking of the pupils' manuscript work in music from Cleveland, says :

"Among the many volumes of manuscripts showing the results of the truly philosophical and progressive methods of instruction in the Cleveland schools, we noted very particularly those on music. These results, in view of the method, must be surprising to every one. It was well shown that pupils in the public schools may be taught accurately and readily to reproduce in written exercises the tones, melodies, and entire pieces of music, impromptu, on hearing them sung or played. This is truly admirable, and should entitle the instructor to a gold medal. The execution of scholars in other branches taught in the Cleveland schools seemed to us second only to that of Cincinnati."

The *American Bookseller*, thus describes the method in teaching music at Cleveland :

"In Cleveland music is introduced in the first school year, and the work by pupils of from six to ten years of age, shows wonderful talent. Some of the papers are exercises written from dictation, giving time, measure, etc., and writing the notes on the staff, as the teacher sings or plays."

2. *Drawing*.—As in Massachusetts, so in Ohio, great attention is given to the subject of drawing, and with most gratifying success. "Free-hand," as well as copying from nature, are the methods employed, either singly, or, as is desirable, combined. In order

to render teaching in this branch more successful, the authorities of the Normal School at Cincinnati, require that the candidate-teacher shall go through a thorough course of blackboard drawing for the purpose of being able to sketch off-hand object lessons, readily on the blackboard." As to the system of drawing adopted at Cleveland, the *American Bookseller* says:—

"In drawing, Cleveland has a system of her own. It is introduced in the first school year, and continued throughout the entire course, about an hour and a half per week being devoted to it. Pupils begin with line drawings on blackboard and slate; from this they pass to drawing of simple objects, which they are not only required to draw, but to describe, both object and position, orally and in writing. Then they draw the object from the object itself in different positions."

3. *Thoroughness*.—This was an excellence, which, even from a cursory examination of the pupils' work, especially in the City Schools, was forcibly impressed upon my mind. Nor was this evidence of thoroughness confined to the higher branches; it seemed to be characteristic of the school work generally throughout the State.

4. *Educational Statistics*.—Unusual pains were taken by the State authorities to present the educational statistics of Ohio in a clear and striking light. This was done by the aid of a series of maps and charts. The *Wisconsin Journal of Education* thus describes these maps:—

"No. 1, is a plain white cloth upon which is painted a globe, as large as the area will admit; this is red, and represents the entire school population of the State, the figures of which are printed in bold type across the bottom. We will suppose it is 100,000.

"Map No. 2, represents the same globe with say 85 per cent. of it slightly coloured. This coloured portion represents the number enrolled in the Public School, and the pure red the unenrolled, or number not attending school; the figures and percentage are given at the bottom.

"Map No. 3, gives a still smaller portion of the globe coloured, representing the average attendance, in its proportion to the entire enumeration, figures and percentages being given also. Successive maps in the same manner show the number and proportion of pupils pursuing the different branches required to be taught, as reading, spelling, penmanship, history, &c. It is a very unique, impressive, and instructive exhibit."

"Another feature is a series of maps of the State, showing by a system of shading, the amount between certain named sums, which each county appropriates for educational purposes; its population and valuation; and monthly wages paid to teachers, as indicative of the character of teachers employed; and also school population and attendance. These also are ingenious and interesting."

STATE OF EDUCATION IN THE STATE OF OHIO.

"Number of youth of school age: Whites, 995,128; Coloured, 22,598	1,017,726
"Number of pupils enrolled in Public Schools: Boys, 375,436; Girls, 336,693.....	712,129
"Number enrolled in High School: Boys, 11,280; Girls, 12,932.....	24,212
"Number of pupils 16-21 years of age enrolled: Boys, 54,941; Girls, 38,110.....	93,051
"Number 16-21, enrolled in High Schools: Boys, 4,746; Girls, 5,523.....	10,269
"Average daily attendance in all the Schools: Boys, 225,431; Girls, 209,918.....	435,439
"Number of Teachers employed: Men, 10,816; Women, 12,306.....	22,492

"Number employed in High Schools: Men, 427; Women, 214.....	641
"Whole number of School-houses in the State.	11,834
"Total value of School-houses in the State, including grounds.....	\$19,876,504 00
"Receipts from all sources for School purposes.	8,711,411 86
"Total expenditure for Public Schools.....	8,170,959 98
"Average cost of education <i>per capita</i> of enrolment.....	10 57
"Average cost of education <i>per capita</i> of average daily attendance.....	17 29
"Number of pupils enrolled in Private Schools.....	10,652
"Number of Teachers in Private Schools.....	211

XI. THE EDUCATIONAL EXHIBIT OF THE STATE OF NEW JERSEY.

Although a comparatively small State, the Educational Exhibit from New Jersey was, undoubtedly, the most extensive and representative in its character (according to her size) of any State in the Union. This was owing to the admirable manner in which the Hon. E. A. Apgar (State Superintendent of Education) had planned the "Exhibition Campaign" in his State, and enlisted the schools in the project. He held meetings in every county and city, and urged upon the school authorities the necessity of getting specimens of work from every school, so as to secure a faithful exhibit of school work from the whole State. By this means he enlisted the entire educational machinery of New Jersey. It was, therefore, exceedingly gratifying to Mr. Apgar, and most creditable to the State, that of the 2,810 Public School Teachers in New Jersey, 2,690, or 95 per cent. of them, furnished work for the Exhibition; that of 17,662 specimens exhibited, 16,150 were from the Public Schools alone. The number of pupils that furnished work was 14,000. The character of the whole exhibit may be best gathered from the following summary, prepared by the State Superintendent:—

"(1.) In Volumes:

Drawings, number of specimens.....	1,190
Maps, number of specimens.....	2,607
Mathematics, number of specimens.	1,602
Penmanship, number of specimens.....	1,808
Grammar, number of specimens.....	714
Composition, number of specimens.....	630
Spelling, number of specimens.....	2,821
Primary Work, number of specimens.....	3,147
Miscellaneous Work, number of specimens.....	340
Total number of volumes.....	438
Number of specimens in volumes.	14,859

(2.) In Frames:

Drawings, number of specimens.....	106
Maps, number of specimens.....	99
Penmanship, number of specimens.....	32
Number of specimens in Frames.....	237

(3.) *In Portfolios :*

Drawings, number of specimens.....	132
Maps, number of specimens.....	57
Number of specimens in portfolios	189

(4.) *Miscellaneous :*

Number of Photographs of School Buildings.....	333
Number of Stereoscopic Views.....	69
Number of Decennial Exhibits in Manuscript	21
Number of School Histories	27

A complete set of State Educational Reports from 1839 to 1875, inclusive, bound in seven volumes.

A full set of Blanks and Forms used in conducting School business.

Copies of the School Law, containing blanks, forms, and directions.

Large Pen Drawing, 48 x 32 inches, respecting the progress made in the United States during the past century, executed by D. T. Ames, of Elizabeth.

Cryptogamia of New Jersey, arranged by Coe F. Austin, including—

Five hundred and twenty-six species of Musci ;

One hundred and sixty-eight species of Hepaticæ ;

Two hundred and fourteen specimens of Lichenes.

Total number of specimens of Miscellaneous.....	865
Total number of Books exhibited by the Colleges.....	730
Total number of Minerals, &c., exhibited by the Colleges.....	62
Total number of specimens of Pupils' Work furnished by the Private Schools	720

GRAND TOTALS.

"Number of Colleges represented.....	2
Number of Private Schools represented	33
Number of Public Ungraded Schools represented.....	1,184
Number of Public Graded Schools represented.....	230
Number of High Schools represented.....	8
Number of Public Schools unrepresented	120
Total number of Public Schools in the State	1,542
Number of Public School Teachers in the State	2,810
Number of Public School Teachers who furnished work	2,690
Percentage of School Teachers who furnished work.....	95 per cent.
Number of Pupils who furnished work	14,000
Number of Specimens from Public Schools.....	16,150
Number of Specimens from Colleges and Private Schools.....	1,512
Total number of Specimens exhibited.....	17,662 "

It will thus be seen that the New Jersey exhibit consisted of drawings, maps, mathematical work, penmanship, grammatical exercises, composition, etc. Besides this, Princeton College sent to the Exhibition a unique and rare collection of books written by past and present alumni and officers of the college, numbering seven hundred and thirty bound volumes, and several hundred pamphlets, including one thousand one hundred and sixteen titles. The bound volumes represented nearly three hundred authors, including thirty

college professors, eleven college presidents, nine supreme court judges, two vice-presidents, and one President of the United States—James Madison.

Rutgers' College also exhibited old and rare views of the college, photographs, portraits, old apparatus—among which was a compass used by General Washington in his survey of Virginia, in 1748. There were in addition models and geological specimens, etc. Private Schools, and the Normal School at Trenton, were also well represented.

STATE OF EDUCATION IN NEW JERSEY, 1876.

From the Catalogue of the New Jersey exhibit, I gather the following interesting facts in regard to her educational progress during the last decade :—

REVENUE.	1866.	1876.
State Appropriation.....	\$ 82,929 69	\$1,338,578 57
Township Tax.....	486,878 14	24,865 31
Interest of Surplus Revenue.....		31,769 46
District and City Tax.....	47,097 17	916,252 18
Total for support of Schools.....	646,398 06	1,762,596 35
Total for Erection of Buildings.....	47,096 17	548,869 17

SCHOOL CHILDREN.

Census.....	208,404	312,649
Enrolment.....	130,290	191,731

SCHOOL TERM.

Schools kept open.....	7 months.	9 months 14 days.
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VALUATION OF SCHOOL PROPERTY.

Number of School Buildings.....	1322	1542
Valued at \$100 or less.....	115	36
Between \$100 and \$500.....	548	330
Between \$500 and \$1,000.....	304	378
Between \$1,000 and \$5,000.....	264	546
Between \$5,000 and \$10,000.....	35	94
Over \$10,000.....	56	124
Average Value.....	\$1,639	\$4,085
Total Value.....	\$1,645,000	\$6,205,000

CONDITION OF SCHOOL BUILDINGS.

Very Poor.....	382	62
Poor.....	315	108
Medium.....	283	281
Good.....	288	523
Very Good.....	54	534

TEACHERS AND SALARY.

Males.....	852	946
Females.....	1310	2307
Salary per month to Males.....	\$39 83	\$67 75
Salary per Month to Females.....	\$24 25	\$37 75

XII. THE EDUCATIONAL EXHIBIT OF THE KINGDOM OF THE NETHERLANDS.

Next in order of merit, as it appeared to me, was the somewhat extensive and complete two-fold exhibit from the Netherlands. From a purely educational point of view, the collection of school material was, of course, the most attractive; but the admirable series of illustrations of the public works of Holland,—dykes, sluices, canals, aqueducts, quays, bridges, railroads, etc., was nevertheless most interesting and instructive to the educationist. Here was vividly portrayed, on an extensive scale, and in a series of grand object lessons, the engineering difficulties caused by the peculiar physical conformation of Holland, and an illustration as to how they were overcome by the patient foresight and scientific ability of her engineers. The constant demand for this kind of professional skill has imposed upon the Government the necessity to which it has liberally responded, of providing means for training "boys of from 17 to 18 years of age" in the "Industrial and Artisan Schools" of the country, so as "to become clever artisans in theory and practice." These schools are practical workshops, where boys are taught to be skilful smiths, carpenters, joiners, wood carvers, and masons. In other schools they are trained to various higher mechanical and engineering pursuits.

In addition, therefore, to the school apparatus from the Netherlands, which was exhibited by "the Society of Teachers in Holland," there was exhibited from the artisans schools at Rotterdam, a capital collection of drawings and designs of bridges, embankments, fortifications, illustrations of trades, and of the machines used in connection with them; also models of locks, hinges, wheels, pulleys, etc.

This branch of instruction has of late years received a great impetus in other countries,—even in those very differently circumstanced from Holland. The reasons for this attention to practical and industrial training in other countries are very different from those which have weight in Holland. The reasons are, however, no less practical, but they arise out of a different state of things, and grow also out of the necessities of the case in each country—necessities which demand a better culture and training for young men in the practical arts. But to this subject I shall refer hereafter.

The chief peculiarities of the exhibit from the Kingdom of the Netherlands may be thus summed up:—

1. It contained a carefully selected collection of "physical instruments and apparatus, constructed for schools, under the auspices of the Society of Teachers in Holland." This collection consisted of 86 articles. They are "supplied by the Society, through Mr. H. J. Harting-Bank, mechanic, Utrecht," at a cost of \$35.40. There was also an excellent collection of maps, charts, globes, atlases, plaster casts, models, drawings, etc. The illustrations of natural history exhibited by Mr. Berghius, of Groningen, were particularly excellent, of which I took a note at the time.

2. It embraces a very extensive and typical collection of nearly "2,500 original Dutch books and periodicals, classified by subjects, and, for the greater part of a late date, remarkable for their contents, or for the form in which they have appeared, and sent in by one hundred and twenty-six publishers."

3. It included a display of "designs and models, very carefully drawn, of some of the great public works of Holland; among others plans, of the principal dykes and canals; not the least interesting among which was a plan of the proposed dyke to shut out half of the Zuyder Zee; and a plan of the new ship canal from Amsterdam to the North Sea, which great work is now *pro* of construction. Views of the great recovered *polder* of the Haarlem Lake were also sⁿ, with a representation of the immense pumping machinery which affected that drainage.*"

SKETCH OF EDUCATION IN THE NETHERLANDS.

From an elaborate report on the "Elementary and Middle Class Instruction in the Netherlands," published by the Royal Commissioners to the Exhibition, I gather the following facts relating to the history and growth of education in that Kingdom:—†

"When, in the beginning of the present century, the Batavian Republic had taken instruction under its special protection, and endeavoured to promote its establishment by publications based entirely on the liberal principles advocated and promulgated by the Society for the Public Good, which tended especially to render the school entirely independent of ecclesiastical influence, the first School Law was passed on the 3rd of April, 1806.

"By this law, and the regulations and ordinances thereto appertaining, it was prescribed among other things, that the supervision of the school should be committed to School Inspectors, who were to constitute in each Department (Province) a permanent School Board. In larger Communes there were to be, besides, Local School Boards. No school was to be established without a special sanction of the Provincial or Communal Government. The instruction embraced: Reading, Writing, Arithmetic, Dutch, French, and other modern languages, and even the Classics, Geography, and the allied branches. This law applied to all schools with the single exception of the *Gymnasias*, or Latin Schools (Grammar Schools). Public Schools were such as were entirely, or partially supported by funds, either of the State, the Department, the Municipality, or some ecclesiastical corporation. Private Schools were distinguished into two classes: to the first class belonged those founded either by churches and other ecclesiastical bodies, or by the Society for the Public Good, or else those, the expenses of which were defrayed by individuals binding themselves to their support. To the second class belonged such as were carried on entirely at the expense or risk of the Principals.

"With regard to the tuition, it was prescribed that, while imparting suitable and useful information, it should be made conducive to the development of the intellectual faculties of the children, and to their training in all christian and social virtues.

"The school-books to be used were subjected to a strict inspection on the part of the Government through the School Boards. The qualification for giving school instruction was obtained by certificates after examinations held by the School Inspectors, or School Boards. There were four different classes or grades of certificates; to get appointed to any school, however, whether public or private, a special appointment or admission was required which, as a rule, could only be obtained by submitting to another examination, mostly a competitive one. For female teachers and all private teachers, there existed only one class or grade. Their qualification however, as well as that of the teachers of the fourth grade, and originally of those of the third grade also, was limited to the Province, or the commune where it was obtained. Persons transgressing any of these prescriptions were liable to punishment or penalties.

* M. Simonin, in *Revue des deux Mondes* of October 15th, 1876.

† I have thought it desirable to give this information as full as possible, although greatly condensed, not only for the interest which attaches to the history of education in Holland, but also because of the fact that many people confound the Dutch system of education with that of Germany, whereas they differ widely in many particulars.

"When, on the establishment of the Kingdom of the Netherlands, after the events of 1813, a new constitution was framed, a Decree, dated the 6th of March, 1815, settled: That the School Law of 1806 should be taken as the basis for the further regulating of instruction. Afterwards, however, a vehement opposition arose in the Southern Provinces (Belgium), among the clerical party, against the exclusion of dogmatic instruction from the schools, objecting to the State's interfering with educational matters. This opposition asserted itself especially during the political disturbances in Belgium in 1830, which resulted in the final separation of the two parts of the kingdom.

"In the Northern Provinces (Netherlands), too, voices were heard in favour of the so-called liberty of instruction. By a Royal Decree, on the 2nd of January, 1842, (*Staatsblad* No. 1), the influence of the ecclesiastical element obtained an important ascendancy. In appointing teachers, the candidate's religious persuasion was to be taken into account. The clergy of the various creeds were allowed a right of censorship on the school books. Religious instruction was not exactly included in the programme, but the school-rooms were to be placed at the disposal of the clergy, out of the school hours, for religious instruction. At Haarlem, there was a Government School for the training of teachers, founded in 1816; in some places there were smaller establishments of the same description, erected either by Communal Governments, or by the Society for the Public Good.

"The results of the provisions of the law and of the instruction were,—considering the condition of the schools in other countries at the time, mentioned as satisfactory, even in the opinion of foreigners who had made a study of the subject. Nevertheless a conviction prevailed that instruction might be made more universal; that the position and comforts of the teachers, especially, called for improvement, and that government ought to do more for the training of efficient teachers.

"In 1849 and 1854 His Majesty's ministers laid before the States-General several projects of law, or Bills, for regulating elementary instruction, which, however, were never taken into discussion. At length in 1857 the law was passed. The chief provisions of this law, which came into operation on the 1st of January, 1858, are the following:—

"There are two kinds of elementary instruction,—ordinary, which embraces reading, writing, arithmetic, the elements of morphology, or knowledge of form in general, Dutch grammar, the elements of geography, history, natural philosophy and singing:—and the more extended, including, in addition to the foregoing branches, a knowledge of the elements of modern languages, of mathematics, of the agricultural sciences, gymnastics, drawing, and needle-work. The schools are distinguished as:—Public schools, supported by the State, the Province, or the Commune, and—private schools,—all other schools, whether subsidized, or not, by the Province or the Commune.

"The charges of Public Elementary Instruction are borne by the Communes, who have to provide for efficient public instruction, under the supervision of the States' Deputies and the Crown. If the finances of a Commune prove insufficient, pecuniary aid is granted by the State and by the Province—each for one-half. School fees may be raised by the Commune, but this is not obligatory. Children supported by public charity, or parents in indigent circumstances, are exempt from paying school fees.

"The Public Schools, and such Private Schools as receive pecuniary assistance, are open to all children, without distinction of religious creed. The instruction, while imparting suitable and useful information, is made conducive to the development of the intellectual capacities of the children, and to their training in all Christian and social virtues. Religious instruction, for which the school-rooms shall be available out of the school hours, is left to the ecclesiastical communities.

"Teachers are distinguished as head masters and head mistresses, assistant teachers, male and female, and pupil teachers, male and female. For the education of teachers, there are to be, at least, two Government Training Schools, while normal lessons are to be given in connection with some of the best Elementary Schools.

"Certificates of capacity as Assistant Teacher (male or female) are to be obtained by passing examinations, which are held twice a year in each Province, by the Provincial Inspector and the District School Inspectors. An appointment as Head Master or Head Mistress to a Public School can only be obtained after passing a second examination, and, moreover, a competitive one. The appointment is made by the Communal Council, from

a list of from three to six names of candidates, prepared by the Burgomaster and Assessors in concert with the District School Inspector. Any person giving instruction without a certificate of capacity is liable to punishment.

"The Teachers at Public Schools are entitled to pensions, one-third of which is borne by the Commune and two-thirds by the State.

"For giving private instruction, or instruction in private houses, a certificate of capacity is likewise required, and a testimonial of good moral conduct; foreigners require, beside, a Royal permission. Any person guilty of scandalous conduct, or propagating doctrines inconsistent with morality and public order, may be deprived of his qualification by the States Deputies.

"The School inspection is committed to Provincial Inspectors, District School Inspectors, and Local School Boards. The Provincial Inspectors and School Inspectors are appointed by the Crown; the Provincial Inspectors receive an annual salary; the District Inspectors only allowances for travelling expenses and maintenance. In Communes with a population of more than 3,000 souls there are Local School Boards, appointed by the Council; in the others the Burgomaster and Assessors act as School Board. The Board reports every year on the state of the instruction.

"By transitional provision a period of three years was allowed to the Communes for carrying out the provisions of this law, and the certificates of general admission of the 1st and 2nd Grade, obtained under the law of 1806, were considered as giving the same right as the certificates of capacity for head masters.

"The main points in which the present law differs from the previous one are—

"1st. The more precise specification and the greater extension of the subjects of tuition.

"2nd. The admission of all children, without distinction of religious creed, to the Public Schools.

"3rd. A greater freedom for the establishment of Private Schools.

"4th. An improved and more efficient school supervision.

"5th. The transferring of the cost of Primary Elementary Instruction to the Communes.

"A Royal Decree of 5th February, 1850, ordered the establishment of three Government Seminaries for the training of teachers at Bois-le-Duc, at Haarlem, and Groningen. The programmes for the examinations of teachers were fixed by Royal Decree of the 5th April, 1868, and afterwards amended by Decree of 28th August, 1865."

"Before the introduction of the Law of 2nd of May, 1863, there existed no proper regulation of Middle-class Instruction."

"The popularity of the Law, as evinced by the greater number of Middle-class Schools, established in a very few years, proves that it met a want widely felt. . . . While on the one hand, Government with commendable zeal acquitted itself of its duties resulting from the Law; a noble emulation arose, on the other hand, between the Communes, to organize the new Middle-class Schools in the most efficient and liberal way. Middle-class instruction may now be considered as being completely organized throughout the kingdom."

"The Government Memorial on the subject of Middle-class Instruction says:—'Elementary Instruction is for the people, and destined for all. University Instruction may be considered as destined for the few who wish to obtain a scientific education for a profession or office for which scientific attainments are required; then the broad field of Middle class Instruction, lying between these two, embraces the education of that numerous middle-class, who, beyond the elementary subjects, require a more general culture and preparation for the various professions of industrial society, including not only agriculture, manufactures and trade or commerce; but understood in its widest signification, points plainly to the acquiring of the knowledge of the present world, and to its application to economical and technical pursuits.'

"These schools then fall within the following chief divisions:—

"A. Schools specially destined for artisans or small farmers, chiefly serving to impart to those who have to support themselves by the labour of their hands, such information as is most useful to them in the exercise of their trade The law makes these

schools obligatory in all Communes, without any pecuniary aid from the State or the Province. In special cases, the Crown can release the Commune from this obligation.....

"B. Another class of Schools are the High Burgher Schools, destined for that wealthier middle-class who require a superior culture, and more multifarious acquirements; and more especially for those, who, without classical training, wish to prepare themselves for Commerce, Industrial pursuits, or the Civil Service, or who in general, aim at superior culture The law makes it obligatory for the State to found and maintain fifteen such schools; besides this, the Provinces, Communes, and private individuals, desiring to found such establishments, may receive grants from the Public Treasury

"C. In the third place the law speaks of the Polytechnic School. This is a Government Institution, destined 1st, for the training of Manufacturers or Technical Industrials, who desire a higher degree of theoretical and practical knowledge than can be obtained at a Higher Burgher School with a five years' curriculum; and 2nd, for those who wish to become Civil Engineers, Architects, Naval Engineers, Mechanic and Mining Engineers.

"D. Besides the above-named schools, the law speaks expressly of agricultural schools, in respect of which it is fixed that, if no private establishments arise, with or without Government aid, to provide for this want, a school shall be founded by Government for the scientific training of agriculturists.....

"E. Schools for navigation, commerce, and drawing are not mentioned specifically in the law. Such schools are, however, reckoned to be establishments of middle-class instruction."

The following information is also given in this report :—

"By the Netherlands' Constitution of 1848, (art. 194) the position of the State with regard to public instruction was regulated as follows :—

"Public instruction shall be an object of incessant care on the part of the Government.

"Public instruction shall be regulated by law, with due deference to all religious creeds.

"The constituted authorities shall provide for sufficient public elementary instruction throughout the kingdom.

"Instruction is free, under supervision of the authorities, and, with regard to middle-class and elementary instruction, conditioning an examination as to the capacity and morality of the teachers, as shall be regulated by law.

"A report on the state of the universities, middle-class, and elementary schools shall be sent in to the States-General every year by the Crown."

"The law on elementary instruction was passed 13th August, 1857, and on middle-class instruction, 2nd May, 1863.

"A project of law on higher (universities) instruction has been framed and was discussed in the Chambers in the Spring session of 1876. Hitherto the universities and gymnasia (grammar schools) included in this branch of instruction have been regulated in accordance with the organic Decree of 2nd August, 1815, with some supplements of later date, but on the same principles."

For the following statistical information, in regard to the present state of education in the Netherlands, I am indebted to General Eaton's elaborate report just issued.

"*Netherlands*, constitutional monarchy: *Area*, 20,527 square miles; *population*, 3,767,263. *Capital*, The Hague; *population*, 97,565. Date of the report of the Royal Commissioner, 1826.

"*Elementary Instruction*.—Number of Public Elementary Schools, December 31, 1873, 2,669—viz., 2,215 ordinary elementary, and 454 more extended elementary schools; number of subsidized Private Elementary Schools, 143—viz., 30 ordinary elementary and 113 more extended elementary schools; number of non-subsidized Elementary Private Schools, 978—viz., 406 ordinary elementary and 572 more extended elementary schools. Total number of Elementary Schools, 3,790.

"Number of pupils in Elementary Schools, 382,146—viz., 212,995 boys and 169,151 girls; number of pupils in subsidized Private Schools, 5,999—viz., 2,870 boys and

3,129 girls; number of pupils in non-subsidized Private Schools, 111,914—viz., 49,950 boys and 61,964 girls. Total number of pupils, 500,059.

"Number of Public School Teachers, Assistants, and Pupil Teachers, 7,248—viz., 6,519 males and 729 females; number of Private School Teachers, Assistants, and Pupil Teachers, 4,217—viz., 2,472 males and 1,745 females. Total number of teachers, 11,465—viz., 8,991 males and 2,474 females.

"*Evening Schools.*—Number of pupils in Public Evening Schools, 19,236; number of pupils in Private Evening Schools, 4,555. Total number, 23,791—viz., 17,736 boys, and 6,055 girls. Number of teachers not given.

"Repeating and Sunday Schools.—Number of Public Schools, 102; number of subsidized Private Schools, 18; number of non-subsidized Private Schools, 121. Total, 241.

"Number of Public School Teachers, 219—viz., 215 males and females; number of subsidized Private School Teachers, 41—viz., 40 males and 1 female; number of non-subsidized Private School Teachers, 313—viz., 186 males and 127 females. Total number of teachers, 573—viz., 441 males and 132 females.

"Number of pupils in Public Schools, 3,495—viz., 2,981 males and 514 females; number of pupils in subsidized Private Schools, 967—viz., 683 males and 284 females; number of pupils in non-subsidized Private Schools, 6,513—viz., 2,754 males and 3,759 females. Total, 10,975—viz., 6,418 males and 4,557 females.

"Total expenditure for elementary instruction in 1873, 6,555,519 florins.

"*Secondary Instruction.*—(In Holland Middle-Class Schools.)—For boys, number of Day Burgher Schools, 5; number of Evening Burgher Schools, 31. Total, 36. Number of teachers, 348; number of day school pupils, 356; number of evening school pupils, 4,148, of which 3,307 practised a trade. Total, 4,504.

"*Industrial Schools and Drawing Schools.*—Number of schools, 32; number of teachers, 120; number of pupils, 2,500.

"*Higher Burgher Schools.*—Number of schools, 49, of which 17 are Government schools; number of pupils in December, 1874, 3,874, of which 73 are below 12, and 465 above 18 years of age. Number of professors in 1874, 573.

"*The Royal Polytechnic Schools.*—Number of professors and assistants, 25; number of students in 1874-5, 236; number of pupils in the preparatory class, 76.

"There are several agricultural schools in Holland, of which the number of pupils and professors is not given.

"*Navigation Schools.*—Number of schools in 1874, 11; number of teachers, 23; number of pupils, 250.

"*Middle Class Schools for Girls.*—Number of schools, 7; number of pupils, 539; number of teachers, 82, viz.: 41 males and 41 females.

"*Industrial Schools for Girls at Amsterdam.*—Number of pupils in 1874, 172; number of teachers, 15, viz.: 7 males and 8 females; total annual expenditure, 12,000 florins. Total amount of expenditure for middle class schools, 1,461,400 florins."

XIII. THE EDUCATIONAL EXHIBIT OF THE STATE OF CONNECTICUT.

From Connecticut, the sister State of Massachusetts, so noted for her munificent school endowment, and for her long continued devotion to the cause of education, much was expected at the Exhibition. In this no one had any cause to feel disappointed. The noble figure of Dr. Abraham Pierson, the first President of Yale College, in the quaint costume of British colonial times of 1700, gave an air of dignity and historical interest to the whole exhibit. Like New Jersey (one of the old colonies too), Connecticut seemed desirous of proving to her younger sisters that her zeal in the cause of education was not a thing of yesterday, but that it had animated her sons long before the star spangled banner of a century ago, had replaced the meteor flag of ten centuries.

In this filial and patriotic effort, Connecticut had reason to be proud of her success.

For while the comparatively small state of New Jersey was able, in the Exhibition, to point with pride to nearly 800 volumes produced by the graduates of one of her two noted colonial colleges, the little State of Connecticut (not much more than one half of her size), was able, with equally pardonable gratification, to point to the fine collection which she had reverently made of 1,100 volumes of books written or edited by the alumni and professors of her college.

There were some other points of interest in the Connecticut School Exhibit which were noteworthy. The first and most interesting was a highly creditable display (to which I have referred on page 83 of this Report) of the school work of a large number of Chinese pupils who are being educated in Connecticut under the direction of the Hon. B. G. Northrop, Secretary of the Board of Education in that State, and an educationist of considerable note and experience in the United States.*

The next feature of interest is the creditable display made by pupils, of the practical character of the metric system of France (by means of scales, wet and dry measures), which is being taught in the various schools of Connecticut. The other points of interest in the exhibition relate to the work done by students of the Normal School at New Britain, the pupils of the Girls' Industrial School at Middletown, and those of the Grammar Schools at Hartford, New Haven, etc. In addition to these, there were excellent photographs of the Wesleyan University, the Peabody Institute, Normal School, and other educational institutions of Connecticut, besides an admirable School map of the State, showing the position of every school in it, and its grade, etc.

STATE OF EDUCATION IN CONNECTICUT, 1876.

The educational statistics of this State, as given in the last official report, are as follows:

" Number of children between 4 and 16 years of age, in January, 1876	135,189
" Number of pupils registered in winter schools.....	98,923
" Number of pupils registered in summer schools.....	89,832
" Number registered who were over 16 years of age.....	4,454
" Whole number of different pupils registered in the public schools.....	119,106
" Number in other than public schools.....	9,816
" Number in schools of all kinds.....	128,922
" Number between 4 and 16 years in no school.....	12,297
" Average attendance at winter schools.....	74,369
" Average attendance at summer schools.....	66,621
" Number of teachers in winter; males, 767; females, 1,889.....	2,656
" Number of teachers in summer; males, 321; females, 2,317.....	2,638
" Number of teachers continued in the same school.....	1,780

* And here I should not omit reference to another eminent educationist of Connecticut—the Hon. Henry Barnard, LL.D. Dr. Barnard has rendered distinguished service to the cause of education, not only in his State and country, but wherever American education is known. He has held the office of Superintendent of Public Instruction in his own State (Connecticut), and in Rhode Island, and was the first United States Commissioner of Education at Washington. He has not only been the able editor of the *American Journal of Education*—a quarterly magazine or review, of great value—but has also published a series of standard works on the History, Science and Art of Education in Europe and America, which almost form a complete reference library on education in themselves.

" Number of teachers who never taught before	539
" Average wages per month of male teachers	\$67 43
" Average wages per month of female teachers	\$37 16
" Number of towns in the State	167
" Number of school districts in the State	1,493
" Number of public schools	1,628
" Number of departments in public schools	2,499
" Average length of public school days	178
" Number of new school-houses built in the year	26
" Number of school-houses reported in good condition	883

" Income :

" Income from school fund	\$135,189 00
" Received from State school tax	202,133 50
" Received from town deposit fund	47,665 00
" Received from local funds	12,562 54
" Received from town tax	711,167 98
" Received from district tax	399,834 65
" Received from voluntary contributions	4,599 11
" Received from other sources	46,763 28

" Total receipts for public schools	\$1,560,565 06
" Amount expended for teachers wages	\$1,085,290 05
" Amount expended for fuel and incidentals	133,343 89
" Amount expended for new school-houses	95,758 63
" Amount expended for repairs of school-houses	68,860 09
" Amount expended for school libraries and apparatus	7,448 72
" Amount expended for other school purposes	138,480 14

" Total amount expended for public schools	\$1,529,181 52
" Income of school fund distributed, 1876	\$135,189 00"

XIV. THE EDUCATIONAL EXHIBIT OF THE STATE OF RHODE ISLAND.

Like Massachusetts and Connecticut, Rhode Island, though in a lesser degree, has an honorable educational record in her later history—especially since 1828. Being the place to which Roger Williams fled, when driven from Massachusetts, it became the home under its founder's kindly rule, of all the oppressed of other colonies and countries—French Huguenots, Quakers, Episcopalians, Baptists, etc. The population thus gathered was not homogeneous. And although Roger Williams, the founder, was a "School Teacher and a friend of Milton,"* it was not until 1800 that the first really serious public effort was made to establish schools in the State. The law passed then was very unpopular, and it was repealed in 1803. In 1820 another feeble effort was made to revive public education; but it was not successful. In 1828, a much more successful effort was made, and a School Act was passed which is still the foundation of the school system of the State. It was not, however, until the Hon. Henry Barnard became Commissioner of

* Thus he writes, after returning from a two years' stay in England, 1654:—"It pleased the Lord to call me for some time, and with some persons to practise the Hebrew, the Greek, Latin, French, and Dutch. The Secretary of the Council (Mr. Milton) for my Dutch I read him, read me many more languages. . . . I taught two young gentlemen, a parliament-man's sons, as we teach our children English, by words, phrases, and constant talk."—History of Public Education in Rhode Island 1686-1876, page 1.

Education in 1844, that Rhode Island took any creditable position as an educating State. From that time until the present the educational growth and progress have been steady and satisfactory. The value of school property in the State has trebled within ten years.

Like most of the other States the Educational exhibit of Rhode Island was chiefly made up of specimens of pupils' work, of which there were 220 volumes, principally in drawing of various kinds (map, freehand, mechanical, and architectural), music, writing, etc. There were good plans of school-houses, photographs of school buildings, and of the Normal School, and Brown University; statistical charts, course of study, etc. The schools in the Cities of Providence and Newport were well represented.

STATE OF EDUCATION IN RHODE ISLAND, 1875.

From General Eaton's last Report we gather the following information in regard to the condition of Education in that State:—

"Number of children of legal school age—4-16 years.....	53,316
"Number under 6 years of age.....	4,995
"Number between 6 and 16.....	48,321
"Number enrolled in day schools.....	38,554
"Number enrolled in evening schools.....	4,600
"Average monthly enrolment in day and evening schools.....	33,408
"Average daily attendance in day schools.....	26,163
"Average attendance in evening schools.....	2,256
"Number of school-rooms in day schools, exclusive of those used only for recitation.....	739
"Estimated value of sites, buildings and other school property....	\$2,360,017
"Average duration of day schools, in days.....	178
"Number of teachers employed in public day schools: men, 195 ; women, 861.....	1,056
"Number of teachers employed in evening schools: men, 83 ; women, 109.....	192
"Total number of teachers employed.....	1,248
"Average salary of men per month in day schools.....	\$85 18
"Average salary of women per month in day schools.....	\$46 17

Receipts :

"From State tax	\$70,402 50
"From local tax.....	614,382 57
"Total from taxation.....	\$684,785 07
"From interest on permanent fund, including rents of school lands.	\$22,092 50
"From other funds, individuals and corporations.....	10,286 13
"From other sources.....	44,633 22
"Total.....	\$761,796 92

Expenditure :

"For sites, buildings, and furniture.....	\$274,326 41
"For Libraries and apparatus.....	1,508 61
"For school supervision.....	11,681 02
"For salaries of teachers.....	383,284 14

" Miscellaneous or contingent.....	\$77,059 23
" For evening schools.....	16,784 33
" Total.....	\$764,643 74
" Amount of available school fund....	\$250,376 37
" Amount of permanent school fund.....	265,142 51
" Increase of permanent fund in the school year.....	\$1,810 02
" Number of boys attending private schools of grades below high..	1,770
" Number of girls attending private schools of grades below high..	1,870
" Total attending schools of such grades.....	3,640
" Number of boys attending private schools for secondary instruction.....	2,2 0
" Number of girls attending private schools for secondary instruction..	1,600
" Total attending private schools of such grades	3,860
" Number of men teaching private schools of all grades.....	100
" Number of women teaching private schools of all grades.....	75"

XV. THE EDUCATIONAL EXHIBIT OF THE STATE OF NEW HAMPSHIRE.

Being one of the New England States, the exhibit from New Hampshire was good of its kind—being chiefly, as in the case of the other States, pupils' work. This work was principally from the High Schools, of which there is a large number in the State. It consisted of drawings, slate work, and music, writing, etc., bound up in 115 volumes.

Among the other objects of interest were: 1. Photographs of the interiors and exteriors of several ladies' colleges [and seminaries, Dartmouth College, the New Hampshire Institution, and various High Schools. 2. A very striking map in relief of the White Mountain region, by the State Geologist. 3. A handsome model of the Manchester Grammar School, and a photograph of an old school-house in the same town. The contrast is both striking and instructive. 4. A case of old text-books of 1776, including Pike's Arithmetic, the Historical Leader, and Morse's Geography—this latter is a great curiosity. 5. Kindergarten work and material.

Dartmouth College was represented by catalogues, examination papers, and excellent specimens of the work done in the scientific department of the college. The other state institutions were represented by their catalogues and other official papers.

STATE OF EDUCATION IN NEW HAMPSHIRE, 1875-6.

The last report issued gives the following particulars:—

" Number of boys enrolled in the public schools.....	35,901
" Number of girls enrolled in the public schools.....	32,850
" Number enrolled between the ages of 6 and 16 years.....	55,845
" Total enrolment of pupils in the schools.....	68,751
" Average attendance of pupils at the schools.....	48,288
" Number attending private schools.....	3,557

" Number between the ages of 8 and 15 years not attending any school	4,164
" Whole number of children reported	76,272
" Number reported in higher branches	5,172
" Number of male teachers	503
" Number of female teachers	3,166
" Average wages of males per month, including board	\$42,61
" Average wages of females per month, including board	\$25,54
" Organized school districts	2,118
" Number of schools in operation.....	2,599
" Number of schools graded.....	403
" Number of high schools	39
" Number of school houses of all kinds	2,223
" Estimated value of school buildings and sites	\$2,228,905
" Estimated value of school apparatus	\$29,154
" Amount raised by town taxes	\$478,318
" Amount raised by district taxes	60,847
" Amount of literary fund.....	27,340
" Amount of local funds	25,348
" Railroad tax for schools	6,401 00
" Dog tax and contributions for schools	24,883 00
" Total school revenue	\$623,137 00
" Paid for new buildings	\$226,523 00
" Paid for permanent repairs.....	37,721 00
" Paid for miscellaneous expenses	61,850 00
" Paid for teachers' salaries, including board.....	424,889 00
" Total expenditure for Public Schools in the State... ..	\$750,983 00

XVI. THE EDUCATIONAL EXHIBIT OF THE STATE OF MAINE.

Being the youngest of the New England States, Maine, nevertheless, has made a very good exhibit. It was, however, identical in character with those of her sister States. The free-hand drawings from Augusta were very creditable, as well as those from Pembroke.

There was one excellent feature of the exhibit which seems to have been somewhat peculiar to the Maine section of the New England school exhibit,—and that was the very excellent designs for carpets, oil-cloths, table-cloths, frescos, etc., which were sent from Pembroke (a small village), and Augusta. These evinced both taste, discrimination, and judgment. The State Colleges sent some admirable mechanical drawings; and there were photographs of schools in Portland and other places in the State.

STATE OF EDUCATION IN MAINE, 1876.

From the last report issued I glean the following items:—

" Number of persons of school age (4-21)	218,490
" Number of persons enrolled in schools.....	129,482
" Average daily attendance in winter.....	106,976
" Average duration of school in days	22 weeks 2 days.
" Number of School sections in the State	4,322
" Number of School-houses in the State.....	4,261

" Number of male teachers employed in winter Public Schools ...	2,151
" Number of female teachers employed in summer Public Schools	4,284
" Total male and female teachers	6,435
" Salary of male teacher per month, excluding board	\$35 45
" Salary of female teacher per week do	4 26
" Receipts from school tax	882,285 00
" Receipts from bank tax	133,965 00
" Total receipts from taxation	\$1,016,240 00
" Receipts from interest on Permanent Fund	\$24,033 00
" Whole receipts for schools in 1876	\$1,040,273 00
" Paid for sites, buildings, and furniture in 1875	\$110,725 00
" Paid for salaries of Superintendents do	29,668 00
" Paid for salaries of teachers do	1,046,766 00
" Paid for fuel, lights, rents, repairs, &c. do	126,144 00
" Whole expenditure for schools do	\$1,313,303 00
" Expenditure <i>per capita</i> of school population do	\$5 41
" Expenditure <i>per capita</i> of pupils enrolled do	7 68
" Expenditure <i>per capita</i> of average attendance do	12 01
" Amount of available school fund do	400,558 00
" Increase of Permanent Fund during the year past	30,685 00
" Total estimated value of sites, buildings, and other school property	3,019,549 00"

XVII. THE EDUCATIONAL EXHIBIT OF THE STATE OF ILLINOIS.

Of all the Western States, Illinois occupied by far the highest educational position at the Centennial Exhibition. The aggregate of pupils' work in the exhibit greatly exceeded in quantity that of any of her sister states—there being nearly 500 volumes of such work in manuscript exhibited. Nor was the quality inferior, except in a few departments. This arose more from inequality in skill and manipulation of the subject by individual pupils and in individual schools, than from any defect in the system or modes of teaching. In so extensive a collection of pupils' work, it was difficult to secure equal excellence in all of the specimens, and in the several departments of the schools. Great care was, however, apparent in the supervision which had been exercised in selecting the work sent to the Exhibition. No primary work below the third grade was permitted to go.* The chief part, therefore, of the work came from the High Schools, graded schools in cities, the County and State Normal Schools, and the Industrial University. It included among other subjects, examples in various kinds of Drawing, Writing, Music, German, Mathematics, and composition. In the two latter subjects the Chicago Schools excelled, as they did indeed in most of the other branches.

*The following explanation of the "quantity and quality" of the Illinois exhibit is given by the Hon. S. W. White, State Agent: "There was no attempt at display beyond what was necessary for convenience in examining the work exhibited. There were a few instances in which the student had taken time to do his best in developing his plan and finishing it in detail; a few volumes of manuscripts had been copied, but the great mass of the exhibit was shown just as it came from under the pens of pupils at work on time. It was an honest display of what the schools are able to do any day."

There was a feature in the Illinois Department which attracted a good deal of attention, and that was the exhibit from the Industrial University. The establishment of this useful institution furnished another example of the great zeal with which the American people are extending the advantages of technical education to the ingenious and clever youth of the country who evince a taste or talent for mechanical and industrial pursuits. Speaking of the institution, the *American Bookseller* says :—

"The Illinois Industrial University occupies a prominent place in this exhibit, showing apparatus and samples of students' work in the several departments. In Natural Science there are a large number of specimens of chemicals prepared by the students, and classified collections of plants, animals, and minerals. The students of Engineering show models and machines, engineering plans, and a number of large portfolios of excellent drawings. Other departments of the University, as the School of Commerce, Domestic Science and Art, and the School of Free-hand Drawing, show portfolios of work, that from the students of free-hand drawing being especially noteworthy for its excellence. The College of Agriculture also shows specimens of grain in the building known as the Mineral Annex, and, in Agricultural Hall, no less than 169 specimens of corn from the United States and British America, showing the climatic variations.*

"This University deserves more than a passing notice, as it is one of the most promising of our younger schools of the kind, and its influence is already extending beyond its own State. It is located in Urbana, and was opened in 1868, being founded by means of the Congressional grant of land made in 1862, with the aid of State and county endowments. It owns 25,000 acres of lands in Minnesota and Nebraska, besides invested funds amounting to \$350,000, buildings valued at nearly half a million, a library of 10,000 volumes, and it is well provided with tools and apparatus. It has now on its roll 386 pupils, 83 of whom are ladies.

"Very properly, then, this University occupies a prominent place in the space allotted to Illinois schools. There are, however, volumes of work from other colleges, Knox, Westfield, Monmouth, Wesleyan, and Lombard University, which deserve examination. There are also photographs of school buildings, samples of school furniture, volumes of school reports, and educational publications."

In speaking of the special peculiarity of the various United States School Exhibits, to which I have referred, the Hon. S. H. White, in a recent educational address on the Centennial remarked :—

"It was a predominant feature of all the exhibits from this country that they mainly consisted of results produced by their educational systems. The work was shown, but there were with it but few of the appliances used by the teacher in doing it, beyond the text-books in use in the schools. In this respect there was a strong contrast between our own exhibits and those of other countries. Those of Belgium, Switzerland, Norway, and especially those of Russia, Sweden, and Ontario, derived their chief interest from their large amount and variety of illustrative apparatus for use in almost every department of school work."

There was one fact connected with the Illinois Exhibit which reflected great credit upon the leading educationists and teachers of the State. It is thus explained by the Hon. Mr. White :—

"A marked peculiarity of the exhibit was the manner in which it was planned, prepared, and managed from first to last. That its plan should be conceived and all its preliminary work done under the direction of the State Teachers' Association seemed natural enough. They were deeply interested, and the enterprise was more closely connected with their work. But that the raising of money, its expenditure, and the whole financial

* The Industrial University includes in it a College of Engineering, a College of Natural Science, a College of Literature and Science, a College of Agriculture; also Schools of Military Science, of Commerce, of Domestic Science and Art, and of Drawing.

responsibility, should be undertaken by that body, entirely without guaranty from any party against loss, seemed almost incredible to many who were wont to complain of the poverty of their own State appropriations. This wonder naturally increased when it was seen that in amount of material or of work presented, the display stood not lower than third in the list of States."

STATE OF EDUCATION IN ILLINOIS, 1875-6.

" Males in the State under 21 years.....	751,947
" Females under 21 years.....	719,194
" Total persons under 21 years....	1,471,141
" Whole number between 6 and 21 years.....	973,589
" Number of school districts.....	11,563
" Whole number of public free schools.....	11,965
" Number of male pupils enrolled.....	355,664
" Number of female pupils enrolled.....	331,782
" Total number of pupils enrolled.....	687,446
" Number of male teachers.....	9,295
" Number of female teachers.....	12,826
" Total number of teachers.....	22,121
" Number of graded schools.....	822
" Pupils in female schools.....	49,375
" Number of districts having school libraries.....	1,901
" Acres of school land sold during the year.....	1,399
" Number of acres remaining unsold.....	13,011
" Whole number of school houses.....	11,693
" Number built during the year.....	283
" Number of males between 11 and 21 unable to read or write....	2,941
" Number of females between 11 and 21 unable to read or write....	2,567

XVIII. THE EDUCATIONAL EXHIBIT FROM THE STATE OF INDIANA.

This State takes rank next to Illinois among the western sisterhood of States in her Educational exhibit. Great care was taken in its arrangement, and in securing excellence in the material itself. There were 175 volumes of pupils' work in the various departments of study in the public and high schools, and in the Normal School and the University.

Although the number of volumes of pupils' work shown was not more than one-third of those in the Illinois collection, yet less care was exercised in its selection for the Exhibition. Specimens of pupils' work from no less than 15,000 children were sent. Such an "omnibus" collection included, as might have been expected, examples of work, "good, bad, and indifferent." This want of discrimination marred to some extent an otherwise admirable exhibit. And yet, it was no doubt intended, that in excluding none, a fair and honest typical collection of the varied work of every kind of pupil, and of every grade of school should be exhibited. So far, it was interesting and perhaps useful; but the time of visitors was too precious to allow them to give such an exhibit that careful examination which curiosity and a desire for information might have otherwise prompted. Among the specimens of pupils' work exhibited, there were some of superior excellence

viz. : (1) *Botany*. The High School pupils sent some admirable collections of botanical specimens, and woods of various kinds, besides examination papers on Botany specially prepared. Thus, a flower was given to a pupil, and he was required to make a drawing of it and write the analysis and classification. This was generally well done. (2) *Designs*. The Industrial Art. There were several well prepared and practical coloured designs for calicoes and carpets, etc. ; besides white and black designs for laces. (3) *Industrial Drawings*. These included designs for vases, cups, saucers, book covers, etc. There were also very good water colour sketches.

There was one department of the exhibit of special excellence, and of great usefulness in improving the character and style of school architecture. It consisted of a series of ten models of school-houses and educational institutions, from the dilapidated old log structure of the past, up to the elegant Normal School building of to-day. In addition, there were quite a number of photographs of excellent representative school-houses. Such an instructive collection of models and views could be studied with great interest by those who were desirous of improving the style and condition of the ordinary school-houses. Such houses are too often of such a nondescript character as to render it difficult to determine to what order of architecture they belong ; and what is worse, such ill-planned structures are often most unsightly when they might have been elegant and tasteful in their appearance. In their construction they are generally not convenient for the purpose of a school, while they are positively unhealthy, owing to the fact that no attention is paid to their proper ventilation or heating.

Another speciality of the Indiana School Exhibit, which I should not omit to mention, was Prof. Copland's admirable collection of fish found in the inland waters of the State.

STATE OF EDUCATION IN INDIANA, 1875-6.

From the last Report of the State Superintendent, issued in December last, we gather the following facts :—

" Total number of white children	668,969
" Total number of coloured children.....	10,261
" Total	679,230
" School attendance.—Total number of white children enrolled.....	509,307
" Total number of coloured children enrolled.....	6,963
" Total number of children enrolled in the schools during the year.....	516,270
" Duration of schools—average 160 days.....	13,317
" Number of white teachers employed.....	94
" Number of coloured teachers employed	13,411
" Total number of teachers employed.....	
" The average compensation of teachers throughout the State was as follows :—	
" In Townships.....	81 93
" In Towns.....	2 63
" In Cities	3 28
" There were 9,434 school-houses in 1876, which were valued at \$11,548,993 67.	
" The amount of the School Fund in 1876 was \$8,870,872 43."	

The following Statistics regarding the School system of the State has been published :—

GROWTH OF THE INDIANA SCHOOL SYSTEM.

" Year.	Length of School in Days.	Number of Teachers.	Attendance at School.	Total Amount Paid Teachers.
" 1855.	61	4,016	206,994	\$ 239,924
" 1860.	65	7,649	303,744	481,020
" 1865.	66	9,493	402,812	1,020,440
" 1870.	97	11,826	462,527	1,810,866
" 1875.	130	13,133	502,362	2,830,747

" Indiana School revenue for tuition includes State tax of 16 cents on each \$100, and interest on common fund ; this is distributed to school children per capita. School Trustees can order a local levy of 50 cents on each \$100 for special purposes. Township Trustees, Town and City Councils, can order a local levy of 25 cents on each \$100 for tuition purposes. Town and City Councils can, on petition of School Trustees, issue bonds to the amount of \$50,000 to pay debts contracted by said Trustees in the purchase of grounds and in the erection of buildings, and they may levy a tax of 50 cents on each \$100 each year to redeem said bonds. An aggregate poll tax of \$2.75 may also be levied for school purposes. In cities of first-class certain additional taxes may be levied.

" School Revenue for the year 1875, from Liquor Licenses, &c.	\$ 205,565
" Interest on Fund	597,718
" State Tax	1,577,533
" Local Tax	2,650,622
Total.....	\$5,031,439

INDIANA EDUCATIONAL STATISTICS, 1875.

" School-days in year.....	130	County Institutes.....	91
" County Superintendents	92	Attendance at same.....	11,103
" City Systems.....	40	No. of Township Institutes	4,080
" Town Systems.....	202	Houses erected during year	382
" District Graded Schools	396	Enumeration of children....	667,736
" Ungraded Schools.....	8,940	Enrolment in Schools.....	502,362
" School Corporations	1,253	School Fund	8,799,191
" School Officers	1,845	Additions to Fund during	
" School Houses	9,307	year	\$87,943
" Number of Teachers	13,133	Value of School Property...	\$10,870,338

XIX. THE EDUCATIONAL EXHIBIT OF THE STATE OF MICHIGAN.

The school exhibit from our nearest western neighbour, Michigan, was, in many respects, most complete and interesting, especially in the specimens of pupils' work and various articles sent from Detroit and Adrian.

What struck the visitor first, however, on entering the Michigan department, was the very handsomely bound collection of specimens of pupils' work, arranged in a neat book-case. These specimens were, on the whole, worthy of this distinction. They were neatly and carefully prepared, although not so numerous as were those from Indiana ; yet they

were sufficiently representative in their character to show that while no branch of ordinary school study was omitted, none were brought into unequal prominence.

There was a series of interesting charts exhibited, which were worthy of study. (1.) The first was a well-prepared chart illustrating the school system of the State; the others showed: (2) its areas and population; (3) value of school property of the State, income, expenses. (4.) Teachers' salaries. (5.) Position of schools at various periods of the history of the State, etc.

STATE OF EDUCATION IN MICHIGAN, 1876.

"Townships 987; school districts, 5,706; volumes in town libraries, 54,605; in district libraries, 132,335; teachers in public schools, 12,478; average wages of these, \$51.29 for men; \$28.19, for women; total wages paid teachers for the year, \$1,952,674.19; value of school property, \$9,115,350; number of school-houses, 5,787; children of school age, 449,181; whole number attending school, 343,931.

"Total receipts.....	\$1,107,583 78
"Total expenditure.....	4,107,583 78

The following interesting facts are collected from an elaborate Report prepared for the Centennial Exhibition, by Mr. S. B. McCracken, on the "History, Position, Resources, and Industries of Michigan":—

EARLY GOVERNMENTAL PROVISION FOR EDUCATION IN MICHIGAN.

"The ordinance of 1787, for the government of the northwestern territory declared that 'schools and the means of education, shall ever be encouraged.' The Act of 1804, providing for the sale of lands in the then Indian territory, of which the present State of Michigan formed a part, expressly reserved from sale section sixteen in every township, 'for the support of schools.' The Act of 1805, organizing the territory of Michigan, reaffirmed these provisions, and the territorial authority, as early as 1827, enacted laws for the establishment of schools in accordance with their intent. In 1828, Congress placed the school lands under the supervision of the Governor in Council, to protect and lease, so as to make them productive. The Act of Congress of 23rd June, 1836, making certain propositions to Michigan as conditions of her admission into the Union, declared: 'That section numbered sixteen in every township of public lands, and where such section has been sold or otherwise disposed of, other lands equivalent thereto, and as contiguous as may be, shall be granted to the State for the use of schools.'

"The Constitution of the State declares: 'The proceeds from the sales of all lands that have been or hereafter may be granted by the United States to the State, for educational purposes, and the proceeds of all lands or other property given by individuals, or appropriated by the State for like purposes, shall be and remain a perpetual fund, the interest and income of which, together with the rents of all such lands as may remain unsold, shall be inviolably appropriated and annually applied to the specific objects of the original gift, grant, or appropriation.' So far then as regards the fund arising from these grants, which has become a munificent one, it is dedicated to the purposes of education, beyond any probability of diversion.

"The Constitution of the State also provides that 'A school shall be maintained in each school district [without charge for tuition] at least three months in each year. Any school district neglecting to maintain such school, shall be deprived for the ensuing year of its proportion of the income of the primary school fund, and of all funds arising from taxes for the support of schools.'

"The present school law requires a school to be kept not less than nine months in each year, in districts having over eight hundred children of school age (between five and twenty), not less than five months in districts having over thirty, and less than eight hundred children, and not less than three months in all other districts."

COMPARATIVE SCHOOL STATISTICS FOR TEN YEARS.

The facts embodied in the four following tables will be found of interest:—

TABLE I.

SHOWING: A, the number of townships in the State; B, number of school districts in the State; C, number of volumes in town libraries; D, number of volumes in district libraries; E, whole number of teachers employed in the schools; F, G, average wages per month of male and female teachers, respectively; H, total wages of teachers for the year; I, total value of school houses and lots.

YEAR.	A.	B.	C.	D.	E.	F.	G.	H.	I.
1865.....	713	4,474	58,653	95,577	8,792	841 77	817 54	8720,251 55	82,355,982
1866.....	725	4,625	61,042	79,504	9,182	43 53	18 44	811,959 37	2,854,990
1867.....	774	4,744	52,883	87,606	9,384	44 03	19 48	917,539 01	3,361,567
1868.....	780	4,855	46,819	27,287	9,630	47 78	21 92	1,041,965 58	4,303,472
1869.....	828	5,052	40,254	96,580	10,249	47 71	24 55	1,177,847 86	5,331,774
1870.....	858	5,108	53,725	97,101	11,014	48 04	24 73	1,393,228 59	6,234,797
1871.....	883	5,299	48,470	101,760	11,274	49 92	27 21	1,529,111 58	6,755,995
1872.....	901	5,375	49,744	108,281	11,659	49 11	26 72	1,660,226 11	7,470,339
1873.....	941	5,521	49,291	115,331	11,950	51 94	27 13	1,765,069 59	8,105,391
1874.....	955	5,571	49,872	120,577	12,276	52 31	27 01	1,917,011 10	8,613,845
1875.....	987	5,706	54,605	132,335	12,478	51 29	28 19	1,952,674 49	9,115,350

TABLE II.

SHOWING: A, whole number of school houses in the State; B, number built of stone; C, number built of brick; D, number of frame school houses; E, number of log school houses; F, whole number of seatings for pupils; G, number of children in the State between five and twenty years of age; H, whole number attending school; I, per cent. of attendance to the whole number; J, average number of months of school.

YEAR.	A.	B.	C.	D.	E.	F.	G.	H.	I.	J.
1865.....							298,607	228,629	66.5	6.2
1866.....	4,495	67	329	3,376	723		321,186	246,957	76.5	6.2
1867.....	4,622	73	375	3,509	665		338,244	243,131	72.	6.2
1868.....	4,715	72	416	3,609	618		354,753	250,996	70.7	6.2
1869.....	4,921	74	459	2,767	621		374,774	269,587	72.	6.3
1870.....	5,110	78	538	3,867	627		384,554	278,086	72.5	6.9
1871.....	5,309	77	570	4,024	629	374,760	393,275	292,466	76.5	7.
1872.....	5,518	79	595	4,153	691	382,107	404,235	316,006	78.	7.5
1873.....	5,572	80	641	4,246	605	399,067	421,322	324,615	79.	7.
1874.....	5,702	81	682	4,390	549	407,072	436,694	327,506	75.	7.
1875.....	5,787	79	719	4,476	513	414,060	449,181	343,931	79.	6.9

TABLE III.

SHOWING: A, amount of moneys on hand at the commencement of the year; B, amount of two-mill tax; C, amount of primary school fund; D, district taxes to pay teachers and incidental expenses; E, other district taxes; F, receipts from all other sources.*

YEAR.	A.	B.	C.	D.	E.	F.
1865.....	8142,938 52	8281,770 74	8137,351 92	8178,139 24	8295,769 49	8201,541 21
1866.....	183,981 96	288,820 06	143,943 31	231,769 21	309,319 10	317,521 44
1867.....	192,602 02	289,967 63	142,913 25	332,842 13	541,462 05	485,623 70
1868.....	289,877 87	309,219 38	151,066 50	444,913 09	625,648 53	548,551 25
1869.....	326,446 22	323,246 12	165,960 51	571,564 11	737,054 67	634,325 31
1870.....	300,477 81	405,111 64	177,313 79	1,034,788 77	707,790 10	526,381 67
1871.....	437,939 23	409,541 20	182,922 25	1,157,549 43	591,858 46	551,162 23
1872.....	539,260 28	421,971 29	182,005 97	1,384,079 03	593,680 90	537,971 29
1873.....	530,580 27	465,912 84	194,479 58	1,366,649 68	728,570 49	443,453 68
1874.....	576,056 03	466,086 05	205,430 14	2,393,604 73	.....	453,599 39
1875.....	675,892 40	508,551 87	218,036 29	2,341,923 71	.....	386,265 61

* The column "total resources for the year," is omitted from this table for the sake of convenience. It corresponds substantially, year by year, with column E. in table IV.

TABLE IV.

SHOWING: A, amount paid for building and repairs; B, paid on bonded indebtedness; C, paid for all other purposes; D, amount of money on hand at the close of the year; E, total expenditures for the year, including amount on hand; F, total indebtedness of the district.

YEAR.	A.	B.	C.	D.	E.	F.
1865.....	8175,471 32	.....	8170,600 56	8195,067 45	81,242,824 78	8221,703 45
1866.....	339,690 71	.....	274,810 26	215,431 35	1,587,104 12	235,786 26
1867.....	545,437 30	.....	287,701 66	303,156 00	2,011,025 83	439,476 38
1868.....	805,705 88	.....	309,158 80	313,721 11	2,487,560 32	643,991 49
1869.....	776,074 00	.....	465,983 60	383,542 37	2,771,653 92	917,027 87
1870.....	852,122 62	.....	545,629 55	470,289 46	3,154,232 24	861,409 94
1871.....	662,896 11	.....	648,342 02	527,128 52	3,367,868 81	1,146,569 14
1872.....	625,843 61	.....	746,253 55	560,221 99	3,563,459 03	1,231,686 35
1873.....	597,006 68	.....	788,902 96	594,467 18	3,743,352 70	1,707,700 16
1874.....	536,307 28	8384,954 41	600,901 48	683,661 33	4,107,583 78	1,850,764 19
1875.....	550,661 64	398 106 41	619,112 98	641,700 35	4,168,063 53	1,826,160 48

The value of school houses was first obtained in 1869—sixteen years ago. In that year it was \$1,093,296. Average annual increase, \$501,044.

The amount expended by the districts for the entire support of the schools (including moneys paid on bonded indebtedness) during the year ending September 7th, 1874, was \$3,410,959.68, which is \$7.81 per capita of the school population by the last census.

The following comparative statement of leading items shows the relative position of the two classes of schools (graded and ungraded) in the State, for the year 1874, as to the items stated:—

	Graded.	Ungraded.
Number of districts	327	5,244
Census enrolment	178,204	258,490
School enrolment	121,919	205,587
Teachers employed	2,278	9,998
Teachers' wages	\$914,253	\$1,002,758
Total resources	2,275,149	1,830,602
Total expenditures	1,888,036	1,526,685
Total indebtedness	1,485,241	365,522
Valuation of school property	5,486,761	3,425,937

XX. THE EDUCATIONAL EXHIBITS OF THE STATES OF WISCONSIN AND IOWA.

With the exception of the City of Milwaukee, the State of Wisconsin has sent very little to the Exhibition. Milwaukee may thus be considered as the representative of the State. Her exhibit is admirably prepared, but it differs little from that of the other collections. The State University has illustrations of a very interesting collection of natural history objects, prepared by a student.

Iowa has some good examples of drawing, and other school work, but did not present any special features in her exhibit.

STATE OF EDUCATION IN WISCONSIN—1875.

"Number of children in the State of Wisconsin 4-20 years of age.....	461,829
"Number of such age who attend school.....	277,884
"Total number of pupils attending school.....	279,845
"Number of different persons employed as teachers.....	9,451
"Average monthly wages of male teachers in the counties....	\$43 50
"Average monthly wages of female teachers in the counties..	27 13
"Average monthly wages of male teachers in the cities.....	109 40
"Average monthly wages of female teachers in the cities.....	39 40
"Number of schools with two departments.....	184
"Number of schools with three or more departments.	210
"Whole number of graded schools.....	394
"Average number of days' schools maintained: in cities 195 ;	
in counties 149.	172
"Number of public school-houses.....	5,260
"Number of pupils the school-houses will accommodate.....	330,189
"Number of sites containing less than one acre.....	3,672
"Number of sites well enclosed.....	1,550
"Number of school-houses built of brick or stone.....	663
"Number of out-houses in good condition.....	3,180
"Received from taxes levied for building and repairing.....	\$469,870 00
"Received from taxes levied for teachers' wages.....	234,207 00
"Received from taxes levied for apparatus and libraries.....	15,556 00
"Received from taxes levied at annual meeting.....	395,052 00
"Received from taxes levied by County Supervisors	241,920 00
"Received from income of State School Fund	178,072 00
"Received from all other sources	200,616 00
"Total receipts.....	\$2,728,157 00

" Expended for building and repairing	\$298,657 00
" Expended for apparatus and libraries	27,223 00
" Expended for services of male teachers.....	551,039 00
" Expended for services of female teachers.....	799,745 00
" Expended for old indebtedness	102,418 00
" Expended for furniture, registers, and records.....	45,516 00
" Expended for all other purposes	241,777 00

Total amount expended\$2,066,375 00

" Amount of School Fund.....	\$2,624,239 55
" University Fund	222,255 89
" Agricultural College Fund.....	236,133 90
" Normal School Fund	976,364 34
" Income from School Fund.....	186,409 05
" Income from University Fund	42,671 13
" Agricultural College Fund Income	16,306 97
" Normal School Fund Income	61,128 70

STATE OF EDUCATION IN IOWA, 1875.

" Population of school age in Iowa (5-21): boys, 274,631 ; girls, 259,272	533,903
" Number enrolled in public schools, 1874-'75.....	384,012
" Total average attendance.....	225,415
" Number of teachers in 1874-'75 : males, 6,500 ; females, 11,645	18,145
" Average monthly pay of male teachers.....	\$36 68
" Average monthly pay of female teachers.....	28 34
" Number of ungraded public schools.....	9,203
" Number of graded schools.....	407
" Whole number	9,610
" Average duration of schools in months.....	6.8
" Number of private schools.....	131
" Teachers employed in private schools.....	459
" Aggregate attendance of scholars in private schools.....	13,350
" Number of school-houses : frame, 8,498 ; brick, 650 ; stone, 259 ; log, 121.....	9,528
" Estimated value of sites, buildings, furniture, and apparatus.....	\$8,617,956 00
" Received from local tax	4,226,975 98
" Received from interest on permanent fund and rent of lands.....	318,997 72
" Received from other sources.....	489,524 32

" Total receipts.....\$5,035,498 02

" Expended for sites, building, and furniture....	\$1,087,983 30
" Expended for libraries and apparatus.....	26,700 55
" Expended for salaries of teachers.....	2,598,439 81
" Expended for miscellaneous and contingent matters.....	892,625 73

" Total expenditure.....\$4,605,749 39

" Amount of school fund permanent and available.....\$3,363,960 66

"(From report of Hon. A. Abernethy, State Superintendent of Public Instruction for 1874 and 1875)."

XXI. THE EDUCATIONAL EXHIBIT OF THE EMPIRE OF BRAZIL.

The comparatively small educational exhibit from the Empire of Brazil would not have attracted so much attention, were it not for the very favourable impression which the enlightened Emperor, Dom Pedro made, wherever he went during his recent visit to this continent. The advent of the Emperor at this particular juncture, and his taking part with President Grant in the opening ceremonies, not only gave additional *clat* to the Exhibition, but it created quite a sensation among the sight-seers. The fact that an actual Emperor, and a Bourbon too, should so completely identify himself with a popular interest, and take part freely in proceedings so cosmopolitan in their character as a great Republican demonstration in connection with the Exhibition, was indeed quite a surprise. Further, that he should do so in a matter-of-fact way, and without pomp or parade, was as unexpected as it was gratifying to American feeling; that he should regard nothing affecting the industrial and social position of the people as too unimportant for inspection and inquiry, was a new character for an Emperor to assume, and that in conducting these inquiries he should evince so thorough a familiarity with the details of the subjects which he investigated, and which it had been supposed had never come under his observation, heightened all the more the interest and popular curiosity which had been excited in his movements. Speaking of the effect of the visit of the Emperor to the United States, and of its unostentatious character, the *American Journal of Education* says:—

"The truth is, that Royal visitors heretofore have done little to seduce us from our allegiance to Democracy; but a King like Dom Pedro, who comes to the country to talk with its statesmen, savants and poets, who looks into the workings of Schools, Newsboys' homes, Manufactories and Asylums, that he may the better uplift and ennoble his own people, is a dangerous man in a republic."

In harmony with the enlightened statesmanship which was shown by Dom Pedro in his visit to this continent—his identification with popular movements, and his thorough appreciation of the object and great benefits to be derived from international gatherings—he took the necessary steps to ensure that the Brazilian department of the exhibition should be worthy of his country, and gratifying to visitors. In this he was highly successful. The Hon. Mr. Wickersham in the *Pennsylvania School Journal*, thus speaks of it:—

"Brazil comes to Philadelphia with a very creditable exhibit of her educational interests. Indeed, it may be said here with propriety, that the whole display of Brazil at the Exposition does her great honour, and seems to indicate for her people a future of great prosperity and power. The exhibit contains specimens of text-books and scholars' work from the primary schools, including writing, drawing, needle-work, etc.; specimens of the apparatus used and work done by the inmates of the Deaf and Dumb and Blind Asylums; collections of drawings and designs from the Academy of Fine Arts; scholars' work, writing, book-keeping, drawing, etc., from the Commercial Institute and the Arts and Metiers Lyceum. A large collection of newspapers show that the people like this kind of literature as well there as in this country; and the specimens of Natural History on exhibition, indicate how rich Brazil is as a storehouse of material for science. Several book publishers make very creditable presentation of their work."

The *American Journal of Education* also, in speaking of the Brazilian Educational Exhibit, says:—

"No educational department in the exhibition surpasses this in breadth of scope and accuracy of detail. The books, maps, pictures, and cases of brilliant insects are all ar-

ranged too, with an artistic sense of colour and effect, which hints that their director belongs to the tropics.

STATE OF EDUCATION IN THE EMPIRE OF BRAZIL, 1875.

Influenced by the personal popularity of the Emperor of Brazil, and charmed by his unaffected manner, as well as intimate acquaintance with subjects which no one had supposed that he had mastered, the Brazilian Exhibit attracted a great number of visitors, and was examined with a curious interest. The educational system of Brazil too, which was supposed to be framed on some old European model, was found to be not only popular in its character, but admirably adapted to the wants of a country of such great extent and of such varied populations as exist in Brazil. The Empire was fortunate in the selection of its educational representative at the exhibition, Dr. Philippe Da Motta. I met him at several educational gatherings at Philadelphia, and found him to be a man of broad and liberal views with regard to education, and an enlightened statesman in his mode of carrying them out. A writer in the *American Journal of Education*, gives the following analysis of the Brazilian system of education, as explained by Dr. Da Motta at an educational congress in Philadelphia, and from other sources:—

"The popular American idea that the lives of these tropical brethren of ours is a dreamy afternoon siesta, will receive a shock when we look into their public school system. A little Joses and Salomes in the cities have small leisure for dreams of any sort. From the age of 5 to 12 they are compelled to attend the primary schools. In the country, Brazil being so sparsely settled, education is compulsory in but part of the Provinces, but the Governments of all are zealous in urging it on their people. In these few primary schools the child is taught to read by the syllabic mode, not by the individual letters. In schools of the first degree the little Brazilian is taught Christian doctrine, reading, writing, elementary notions of grammar, arithmetic, and a system of weights and measures. In the second grade he learns the history and doctrines of the Bible, elements of profane history, geography, especially of Brazil, of physical science, of natural history, geometry, land surveying, linear drawing, music of both kinds, and gymnastics. Boys and girls are rigorously separated. Women are employed and are preferred in these primary schools, receive the same salary as men, and offer more successful results as the proof of their efficiency. While there are many Normal schools, the ranks of teachers are frequently recruited from the ordinary schools. A pupil receiving notes of distinction is permitted to act as assistant, thus qualifying himself for teacher. Having passed through the eight classes of these schools he submits to an examination, and if he passes, becomes an assistant teacher of the second year with salary, a system more immediately practical than that of Normal schools. The copy-books, drawings, and specimens of sewing from these public schools presented with more fairness than is usual in other exhibits of the same kind, as we have the bad with the good, and specimens yellow with age, dating back nearly twenty years, contrasted with those of last winter, to show the improvement in the systems. The chirography is unusually excellent. Whether these Brazilian girls will ever write for the press is problematic, but if they do, it will be a day marked with a white stone for the printers. One Luiza da Alvarenga's composition, I remember, the script of which would make a compositor's heart leap for joy. Absolute religious toleration is practised in the schools, as in every department, of Brazil. Object teaching, by aid of pictures, plastic models, and prepared animals, &c., is used; but the Kindergarten is not known. One errand of the Commission here, indeed, is to secure competent lady teachers of Froebel's system, familiar with the Portuguese language, who will introduce it. Besides these public schools there are private institutions of every grade, from the primary to the lycæums, and the Imperial school of Dom Pedro II., in the capital. There are, too, religious seminaries, naval and military systems of schools, technical schools for artisans and workmen, three night schools in Rio de Janeiro, where more than 1,000 adults are

taught, and numberless private classes are established by wealthy planters for the benefit of their poorer neighbours or former slaves. Dr. Da Motta has brought representations from the naval, military, and law schools, the academies of free arts, the apparatus for teaching the blind, and specimens of their work. There is also a superb and complete collection of the insects of Brazil, intended for presentation to one of our scientific Institutions.

"There is no doubt that the educational work which lies before Brazil is but fairly begun; her population is scattered over one-fifth of the continent, and three-twelfths of it are savages or emancipated slaves. But in her efforts are shown an electric energy and a sound common sense which promise exceptional success. One proof of this is seen in the high salaries and the respect paid to teachers; in the wise policy that a man must be relieved of anxiety concerning his family if you would have his best work. Another proof is the fact that of the twenty Provinces, four expend one-sixth of their annual revenue in schools, three one-fifth, six one-fourth, two one-third, and the remainder a large proportion. In addition to this is the aid from the Central Government. In half of these Provinces and in all the cities, primary education is compulsory. The National Library, which contains over 10,000 volumes, to which every decently clothed person has free access, the National Museum, whose visitors on Sundays average 1,000, and numerous polytechnic schools and libraries, well established or springing into life in all the provinces, testify to the vigor of her intellectual life."

STATISTICS OF EDUCATION IN BRAZIL.

The following résumé has been prepared at the United States Bureau of Education from the official hand-book published by the Brazilian Government for the Exhibition at Philadelphia in 1876.

"*Brazil*, constitutional monarchy; *area*, 3,275,326 square miles; *population*, 12,600,000, (estimate of the hand book for 1876,) *Capital*: Rio de Janeiro; *population*, 271,972.

"*General Remarks*.—The organization of complete statistics relative to education throughout the Empire of Brazil has been impeded by various causes, among which may be mentioned the absence of a general census, the sparseness of the population, and many others.

"The results with regard to the number of schools and pupils are far from representing the truth. In the number of pupils given below, those children who receive primary instruction in industrial establishments at the expense of the proprietors, are not included.

"There are, besides, many planters residing at a distance from towns, who prefer to have primary schools, and sometimes schools for higher branches, on their private estates, both for their own children and for their poor neighbours.

"A comparison of the last statistics with those of 1872 shows an increase of 994 primary and secondary schools, and of 20,478 pupils.

"The great zeal which is manifested in Brazil for the diffusion of knowledge is revealed by very striking facts, among which the following may be mentioned.

"1. The establishment of night schools for adults in the capital and different provinces.
"2. The arrangement of lectures on sciences, of popular courses, and of polytechnic clubs.

"3. The establishment of mechanic schools for destitute children.

"4. The establishment of normal schools for both sexes.

"5. The establishment of popular libraries and reading rooms.

"6. The large increase of the educational appropriations in the general and provincial budgets. The expenditure for education in some provinces amounts to one-third of the revenue.

"*Compulsory Attendance*.—The regulations relating to compulsory attendance are only enforced in the capital of the empire and in a few provincial towns. The great distances of many dwellings from school-houses has made general compulsion hitherto impossible.

"*Separation of Sexes*.—The law forbids the admission of the two sexes into the same school. This law is strictly enforced.

"*Educational Expenditure.*—Total expenditure for public primary and secondary education, 5,252,814 milreis (the milreis is equivalent to two shillings and threepence, English money).

"*Primary and Secondary Education.*—Number of primary and secondary schools, 5,890 (private schools included); number of pupils (those of private schools included), 187,915; number of teachers not given in the hand-book. Teachers of public schools are examined, appointed, and paid by the General and Provincial Governments.

"*Higher Religious Education.*—Number of Roman Catholic seminaries, 19; number of students, 1,368; government grants for the support of the seminaries, 115,000 milreis.

"*Military Education.*—Military subjects are taught in the following establishments, subordinate to the War Department: regimental schools, preparatory schools, the military school, the gunnery school of Campo Grande, and the department of artillery apprentices. Number of pupils and professors not given.

"*Naval Education.*—In the Marine Department there are several establishments for naval education, in which a large number of young men receive a thorough training. Number of professors and pupils is not given.

"*Polytechnic Education.*—Number of polytechnic schools, 1, with one general and five special courses. Number of professors and assistants, 35; number of students, 399.

"*Medical Education.*—Number of medical faculties, 2; number of professors and assistants, 36; number of students in 1874, 950. Government grants for these two faculties annually, the sum of 216,910 milreis. In 1874, 32 students of the medical school obtained the degree of doctor; and 64 of the pharmaceutical course received diplomas of capacity.

"*Faculties of Law.*—Number of faculties, 2; number of students in 1874, 406, viz., 260 at Recife, and 145 at St. Paul's; number of graduates in 1874, 83; number of professors and assistants, 34; annual expenditure, 172,200 milreis.

"*Commercial Schools.*—There is one commercial institute at the capital of the empire, with a course of four years. Branches of instruction are, French, English, German, arithmetic, algebra, geometry, commercial statistics, commercial law, and book-keeping. Number of students, 57; viz., 38 matriculated, and 19 not matriculated. Annual expenditure 20,800 milreis.

"*Institutions for the Blind.*—Number of schools for the blind, 1; number of teachers and assistants, 10; number of pupils, 29, viz., 19 boys and 10 girls. Nearly all are educated at the expense of the Government. Annual expenditure, 63,770 milreis.

"*Institutions for the Deaf and Dumb.*—Number of institutions, 1; number of pupils, 20; number of teachers and assistants, 6; annual Government grant, 54,000 milreis.

"*Academies of Fine Arts.*—Number of academies, 1; number of professors, 27; number of pupils in 1875, 107; annual expenditure, 37,560 milreis.

"*Musical Conservatory.*—The Conservatory is connected with the Academy of Fine Arts, under a special director. Number of students in 1875, 108: viz., 52 males, and 56 females. Number of teachers not given.

"*Mining School.*—A mining school has recently been established in the Province of Minas Geraes, with a course of two years. Number of professors and pupils not given.

"*Libraries.*—Number of libraries not given; number of volumes, 460,272; reading-rooms connected with libraries were attended by 85,044 persons.

"*Museums of Natural History.*—Number of museums, 5; number of natural history cabinets connected with institutions of higher learning, 7.

XXII.—THE EDUCATIONAL EXHIBIT OF THE KINGDOM OF NORWAY.

Strictly speaking, Norway should not be referred to as a separate Kingdom, as it is incorporated with Sweden; but I use the term in a convenient sense, as we do when speaking separately of England, Scotland or Ireland as one of the "three Kingdoms." Besides, the School exhibit of Norway was kept quite separate from that of Sweden, and was of an entirely different character. It consisted of the model of an open school-room in a rural district, with seats, desks, &c., arranged in a convenient form. On the desks were

text and copy books ; and on the space allotted, other paraphernalia of an ordinary school in its every day dress. There were also a variety of school apparatus, such as maps, globes, charts, &c. The whole school exhibit of Norway, though most interesting and instructive to the visitor, was yet inferior to that of Sweden in many respects. In regard to this exhibit, Mrs. R. H. Davis, the correspondent of the *New York Tribune*, says :—

“Norway sends a little school-room too, oddly natural and life-like. Here are the graduated seats, and the ink-stands and the copy-books of the anxious Kalthenkas and Johannis, with a mark of a little inky thumb on one. There is the teachers' raised desk and a bunch of wintry blossoms on it, and on the wall, photographs of the mountain and fiords which she sees outside of the windows whenever she raises her weary eyes. From Mr. Gade's published account, we learn that education in Norway is in a measure compulsory, children being required to attend school nine or twelve weeks in the year, until they can read, write, and are instructed in religion enough for confirmation. In 1867, 32,682 children were in the common schools receiving instruction in reading, geography, history, natural history, drawing and sewing. All these schools are under the supervision of the church. They are filled by the children of the poor and middle classes, wealthier parents preferring private schools. Above the primary, are public and high schools, classic, combined Latin, and high civil, in which the English and old Norse tongues are made obligatory studies ; peasants' high schools, where peasants in winter receive instruction in history, geography, and religion. There are also a free university and many asylums for little children, agricultural, nautical, naval and military academies.”

The “Statesman's Year Book for 1876 gives the following additional information :—

“Education is compulsory in the kingdom of Norway, parents being bound to let their children, between the ages of seven and fourteen, receive public instruction.

“Schoolmasters are settled in each parish, who live either in fixed residence, or move at stated intervals from one place to another, and who frequently attend different schools, devoting their time in turn to each. They are paid by a small tax levied in every parish. Instruction in the primary schools is limited to religion, reading, writing, arithmetic, grammar, and geography. Almost every town supports a superior school ; and in thirteen of the principal towns is a ‘*hørd skole*,’ or college, the instruction in which includes theology, Latin, Greek, Norwegian, German, French, English, mathematics, history, and geography. Christiania has a university, founded by the Danish Government in 1811, which is attended by about 400 students.”

XXIII.—MISCELLANEOUS EDUCATIONAL EXHIBITS AT PHILADELPHIA.

The Educational Exhibits from the countries named in this chapter were so meagre and disproportionate to the importance of the countries themselves, that I could do no more than briefly to refer to them in one group. I have, however, endeavoured to make up for this deficiency, by giving, if possible, fuller information in regard to the educational statistics of these countries. Our people will thus be enabled to get a complete bird's-eye view of the educational condition of the various countries which were in any department represented at the Centennial Exhibition. I have sought, with much additional labour, to obtain from every available source the fullest and latest information in regard to the state of education in these and (I may also say in regard to) the other countries and states to which this report refers.

1. SPAIN.—The general exhibit of Spain in the main building was effectively arranged. It consisted chiefly of ecclesiastical ornaments and decorations in gold, silver, bronze, wood, silk, linen, glass and earthenware of rich Moorish patterns. Over the handsome entrance to the Spanish Department were two pictures interesting to North American visitors, one representing Columbus before his patroness, Queen Isabella, and the King—

the other an allegorical picture representing Spain drawing aside a curtain and exhibiting America to the gaze of the world.

In her own National building, near St. George's Hall, Spain had a small educational exhibit consisting of the following objects and articles, thus summarized by the Hon Mr. Wickersham :—

"1. Of a large number of architectural drawings and models. A large wall space is occupied with fine plaster casts designed for drawing models, exemplifying different styles of architecture.

"2. Of several thousand volumes of books exhibited by the Director General of Public Instruction. These embrace text-books for all grades of schools and many works on the history and resources of Spain. There are books relating to medicine, science, art, philosophy and literature. In the collection we noticed several works relating to education; among others the "Principles of Education and Practical Pedagogy," by Dr. Mariona Carderera, Madrid.

"3. The only school apparatus we noticed were the *Dones de Froebel*, some geometrical models, alphabetical blocks in a frame, a spelling chart, and a variety of maps and globes.

"4. Of scholars' work there is little beyond a few specimens of geometrical drawing and designing,—among the rest St. Thomas College, Barcelona. Several normal and other schools have exhibits of designs, maps and drawings arranged in portfolios. A school for the Blind at Madrid, sent some school appliances and pupils' work."

STATE OF EDUCATION IN SPAIN.

From the "Statesman's Year Book for 1876," I make the following extract :—

"According to the latest official returns from Spain, there were 1,251,653 pupils attending the private and public schools, being at the rate of one pupil to every thirteen of the population of Spain.

"Middle-class education is given in fifty-eight public colleges, by 757 professors, to 13,881 pupils. In first-class education, the most remarkable feature is the large number of law-students, namely, 3,755 in 1859-60, divided among ten faculties.

"There were, at that date, ten faculties of literature and philosophy, with 224 students; seven faculties of sciences, with 141 students; four faculties of pharmacy, with 544; seven faculties of medicine, with 1,178; and six faculties of theology, with 339 students—in all 6,181 students. The expenditure for public education by the government amounted, on the average of the last year's, to rather less than £250,000 stg."

2. PORTUGAL.—The chief educational exhibit from Portugal consisted of a number of philosophical and scientific instruments manufactured by the students of the Lisbon Industrial Institute, which I examined with a good deal of interest. This Institution received medals for similar exhibits at London, in 1862, at Paris, in 1867, and at Vienna, in 1873. Mr. J. M. Motta, of Lisbon, has also some electrical instruments. There were also a number of works on elementary instruction and general literature, science and art. The Oporto Industrial Institute exhibited a number of original and translated works. Several volumes of reports, statistics, newspapers, and other periodicals were shown. Mr Mengo, the present proprietor of the Moré book-store of Oporto, had a large number of Portuguese works in the exhibit.

STATE AND PROGRESS OF EDUCATION IN PORTUGAL.

From a voluminous catalogue and report on the Portuguese exhibit, kindly sent to me by Senor Lourenço Malheiro, the Royal Commissioner at Philadelphia, I make the following interesting extracts :—

"The administration of affairs relative to public instruction, is in charge of a general direction in the Ministry of the Interior. A consulting board of public instruction acts with this Ministry, giving its vote on the works that are submitted to its examination, and consulting on questions of public education. The special military education is under the direction of the 'Ministry of War,' and the naval education under that of the Ministry of Marine."

"The public instruction is divided into three branches: higher, secondary, and primary, having besides the special instruction of the fine arts.

The expenses under the direction of the Ministry of the Interior, of the public instruction in Portugal, were as follows:—

1874-1875.....	777,661\$000*
" Estimate for 1875-76.....	798,614\$000

This estimate of expenses is distributed in the following manner:—

" Consulting Board.....	1,200\$000
" Coimbra University.....	87,285\$000
" Lisbon Polytechnic School.....	55,247\$000
" Oporto Polytechnic Academy.....	17,874\$000
" Lisbon Medico-Surgical School.....	13,573\$000
" Oporto Medico-Surgical School.....	12,840\$000
" Funchal Medico-Surgical School.....	1,027\$000
" Higher course of letters (curso superior de letras).....	3,400\$000
" Extraordinary Gratifications.....	4,000\$000
" Lisbon Academy of Fine Arts.....	9,050\$000
" Oporto Academy of Fine Arts.....	4,556\$000
" Subsidies to Pensionists.....	3,600\$000
" Lisbon Royal Conservatory.....	6,432\$000
" Subsidies to Theatres.....	33,552\$000
" Lyceums.....	67,418\$000
" Secondary Instruction outside of Lyceums.....	13,410\$000
" Extraordinary Gratifications.....	6,000\$000
" Primary Normal Schools.....	7,637\$000
" Primary Teachings.....	244,734\$000
" Other Expenses.....	35,400\$000
" Royal Academy of Sciences.....	12,609\$000
" Archives of Torre de Tombo.....	7,080\$000
" Public Libraries.....	11,730\$000
" State Printing Offices.....	138,830\$000
	798,614\$000

Added to the expense in charge of other Ministries, as follows:—

" Military School.....	31,143\$000
" Military College.....	19,056\$000
" Naval School.....	7,470\$000
" Elementary Agricultural Teaching.....	3,500\$000
" General Institute of Agriculture.....	17,857\$000
" Lisbon Industrial Institute.....	14,326\$000
" Oporto Industrial Institute.....	10,770\$000

"Grand Total... 902,730\$000

"The sum spent by private parties can be estimated at 300,000\$000, being the total outlay of the country, with the instruction estimated at 1,200,000\$000.

*1\$000 is equal to \$1.0815 Canadian Currency.

"The higher teaching is furnished by the following establishments :—Coimbra University, Lisbon Polytechnic School, Military School, Oporto Polytechnic Academy ; Lisbon, Oporto, and Funchal Medico-surgical Schools and Higher Course of Letters (*Curso superior de letras*.)

"For the official secondary teaching there are in the kingdom eighteen lyceums, seventeen being at the capitals of the administrative districts, and one in Lamego.

"In the adjacent islands there are four lyceums at the capitals of the districts. . . .

"There are in Lisbon two Normal Primary Schools, one for males and the other for females, established by the decree of the 14th of December, 1869, whose object is to prepare professors for the primary instruction.

"The first one has two professors, who govern the primary school annexed to the normal.

"The second has a regent and three female teachers.

"Each one of the normal schools may receive twenty students, for each one of which the State gives a pension of 68000 reis monthly.

"There were in 1862, in the kingdom, 1,336 public schools for males, and 127 for females. In 1874, there were already 1,987 of the former, and 458 of the latter.

"At the adjacent islands, there were in 1862, ninety-three professors and twenty-six female teachers, and in 1874, one hundred and twenty-seven of the first, and forty-seven of the second.

"Besides this, there were eight more municipal schools for males, and four for females.

"The total number of public schools in 1874 was, therefore, 2,631.

"There were, in 1862, four hundred and eighty professors, and four hundred and sixty-four female teachers of free schools in the kingdom, and forty of the first, and one hundred and thirty-four of the second in the adjacent islands.

"In 1874, there were in the kingdom 1,987 professors, and four hundred and fifty-eight ruling female teachers, and eight professors and four municipal female teachers ; at the adjacent islands, one hundred and twenty-seven professors and forty-seven teachers, the whole being 2,212 of the one, and five hundred and nine of the other.

"There is understood under the designation of special instruction, the teaching of the fine arts, for which there are the following establishments : Lisbon Royal Academy of Fine Arts, Oporto Academy of Fine Arts, and Lisbon Royal Conservatory.

"In 1852-53 there were established, in Lisbon an INDUSTRIAL INSTITUTE, and an INDUSTRIAL SCHOOL in Oporto. The ancient Commercial School, established by the Marquis of Pombal, was annexed afterwards to the Lisbon Institute.

"By the primitive organization this establishment was limited to the purely industrial and commercial teaching, but at present comprises the following courses : of general instruction for workmen, of factory directors, of industrial shops, superintendents and assistants, assistant civil engineers, of engineers and firemen, of telegraph operators, of masters of works, of constructors of instruments of precision, and of commercial course.

"The agricultural teaching, decreed in 1852, is divided into elementary and higher. For the elementary teaching there were established, in 1852, model farms, and in 1869 there were decreed the establishment of experimental stations in the districts, and elementary courses of agriculture in the lyceums. For the higher agricultural teaching there exists the General Institute of agriculture, which was established in 1852, incorporating with it in 1855 the veterinary teaching, which, up to that time, was in charge of a veterinary school.

"There is at present for the elementary teaching only the Cintra model farm, which has an expense of 3,500,000 reis voted in the estimate of the State.

"In some districts there were established experimental stations, and the agricultural and zootechnic courses were commenced. These courses are not obligatory ; their purpose is only to disperse and divulge agricultural knowledge.

"THE GENERAL AGRICULTURAL INSTITUTE comprises the agricultural and veterinary courses, and it has 10 professors and 1 professor of design.

"The administrative personnel consists of a director and 5 subaltern employés. It has 5 chiefs of the service.

"THE ROYAL ACADEMY OF SCIENCE was established in 1779, by the initiative of the

duke of Lafões and the abbot José Correia da Serra. By its primitive statutes it was divided into three classes:—1st Natural Sciences. 2nd Mathematical Sciences. 3rd Literature.

"Each class had to have 8 effective members. Afterwards the number of supernumerary members was fixed at 12, the honorary ones at 12, and the corresponding ones at 100.

"Portugal possesses 3 astronomical establishments. The Lisbon Royal Observatory, the Astronomical Observatory of Coimbra University, and that of the Lisbon Polytechnic School (in construction.)

"In 1874 the ancient Marine Astronomical Observatory in Lisbon, was abolished and annexed to the Naval School, for the practical study of astronomy and navigation in the course of the same school. It has under its charge the regulation of the chronometers and determination of error of the instruments destined for the men of war. . . .

A recent official newspaper, *La Reforme*, in speaking of the state of education in the sister kingdom, says:

"The salaries of teachers give an idea of the state of primary education in Portugal. Those of Lisbon, Oporto, and Coimbra do not exceed \$280 per annum. . . . The primary instruction, such as it is, appears to be organized pretty much upon the basis of that which prevails in Spain, with the exception that the teachers only receive about half of the salaries of Spanish teachers."

STATE OF EDUCATION IN DENMARK.

3. KINGDOM OF DENMARK.—The educational display of this kingdom was very meagre. It consisted, however, of some excellent wall maps and atlases, published by Steen & Son, of Copenhagen; also a large collection of very striking drawings in industrial art, by Mr. Hetsch, of the same city. There were some excellent specimens of photo-lithography.

From Martin's "Statesman's Year Book for 1876," we learn that:—

"Elementary education is widely diffused in Denmark, the attendance at school being obligatory from the age of seven to fourteen. In conformity with Act 85 of the Constitution, education is afforded gratuitously in the public schools to children whose parents cannot afford to pay for their teaching. The system of mutual instruction, introduced in 1820, was generally adopted in 1840. Besides the University of Copenhagen, there are thirteen public gymnasia, or colleges, in the principal towns of the kingdom, which afford a 'classical' education, and under them are a large number of middle schools, for the children of the trading and higher working classes. Instruction at the public expense is given in the parochial schools, spread all over the country, to the number, in August, 1869, of 2,940, namely: 28 in Copenhagen, 132 in the Towns of Denmark, and 2,780 in the rural districts.

STATE OF EDUCATION IN EGYPT.

4. EGYPT.—Although Egypt has of late years made considerable progress in education, she had very little evidence of it at the Centennial Exhibition. She had, however, a very handsome department there, in the style of an Egyptian temple, and a very good collection of national objects. The school exhibit was confined to school books, printed in Arabic with parallel columns in French and Italian. The school books and dictionaries were sent by the Minister of Public Instruction, but in the entire collection there was nothing to indicate life or spirit in the cause of education in Egypt. In addition to the books there were raised works for the education of the blind, curious types, &c., from Mr. Ousy, of Cairo. The extensive collection of ancient manuscripts in hieroglyphics, as well as in the Coptic, Arabic, and Hebrew languages, was both curious and interesting. There were

some excellent plaster casts of celebrated Egyptian monuments, busts, and statues. These I understood from the attendant were made by Mr. Bellair Friedrichusse, of Berlin.

From a valuable paper published in 1875, by the United States Bureau of Education at Washington, on "Public Instruction in Egypt," I make the following extract, which will be found the more interesting from the fact that so little is known in Canada of the educational state of this ancient people. The paper is a translation and a compilation from a work on "*L'instruction publique en Egypte*," par V. E. Dor, Ph. D. of Paris. The writer, in an instructive chapter, gives a brief sketch of the history of Egypt from the earliest times down to the invasion of the country by Napoleon I. in 1798. He says:—

"In whatever light as to its motives we may consider this strange and fantastic expedition, it cannot be denied that in its consequences it became a lasting benefit to Egypt, which, forgotten for centuries, once more became an active member of the family of nations; and in the hands of a man of genius was now to raise to a new life.

"This man was Mehemet Ali, to whom Sultan Selim III. intrusted the fortunes of the country after its evacuation by the French.

"At an early age he had conceived a strong love for France and everything French. His first care was to organize the army on the French model. In order to bring about a thorough and lasting reform not only of the army but of the whole state, Mehemet Ali recognized the necessity of education, and numerous schools of all kinds soon began to spring up throughout the whole of Egypt. The pasha himself set a praiseworthy example, and it must be confessed that it was a noble sight to see the old chieftain sit down at a ripe old age and learn reading and writing.

PRIMARY ARABIC INSTRUCTION.

"The Primary Egyptian Schools, Kanttab—are at this present day in a much higher state of development than is generally believed outside of Egypt; and although they may no longer meet the demands of modern times, having remained stationary for about eight centuries, these schools nevertheless possessed a great deal of vital force, enabling them to live through centuries of darkness. These primary schools are essentially a creation of Mohammedanism, and the reading and writing of portions of the Koran formed the chief occupation of the scholars.

"A peculiar feature of the whole system was the foundation of schools by wealthy persons, the number of such schools gradually growing very large. In many cases the benefactor gave, besides the school-house, an annual sum of money for the teacher; in others, money to be devoted to the clothing of poor children, and in some cases, though more rarely, a library.

"These primary schools have not changed much, either externally or internally. The school-room measures 15 by 20 feet, and is enclosed by a wall on three sides only, and this wall is built up to the ceiling on the two sides only, the greater portion of one side fronting on the street having a sort of lattice-work, to hide the scholars from the gaze of the passers-by and to admit air and a subdued light. The walls are generally covered with verses from the Koran, and on the side turning towards Mecca there is a small niche with a plaster ornament representing a holy-lamp. The floor is sometimes covered with mats or carpets; otherwise there is no furniture whatever; only in rare cases there is a small desk on which the teacher places his Koran. Occasionally one finds school-houses having a second story, used either as a library or as the teacher's dwelling.

"Recently the Government has directed its efforts towards establishing schools more in accordance with the wants of modern life, so that the school-houses described will gradually disappear.

"The Egyptian schools are, as regards the way in which they are supported, divided into three kinds: schools with ancient endowments, and subject to Government-inspection,

schools having endowments, but independent of the government, and schools having no endowment and being in no wise subordinate to the Ministry of Public Instruction.

"The teachers (*fiki*) are not generally men of any great attainments; all that is required of them is to know the Koran by heart; and this mere mechanical knowledge frequently hides the greatest ignorance. Beside the Koran the *fiki* does not know much, except a few simple rules of arithmetic and some fantastic notions regarding geography.

"The salary which the *fiki* receives is, of course, very small. On the last day of the week (Thursday) the scholars each bring one or two piasters (the piaster is equal to five cents), so that the average annual salary comes to about \$80 or \$100.

"The children go to school in the morning not to leave it till 6 o'clock in the evening, except on Thursdays, when, on account of the coming Sabbath (Friday), they leave at noon. They either bring their food along, or give half a piaster to the teacher, who supplies them with some dates, beans, and a piece of bread.

"The first years of their life the children spend in the harem, which they leave when about 6 or 7 years of age, to attend school. Mr. Dor gives the following graphic description of a school in full operation: 'The teacher and scholars sit on the floor, the former generally near the door or in that corner of the room which has the best light, the children grouped around him. This assembly of white, tawny and black figures, with their glittering eyes; their red lips wide open, showing two rows of shining teeth; with their round heads, some freshly shaved, others with short hair; with their long blue garments, from under which their naked feet peep forth—all this, framed by the characteristic Arabic architecture and seen in the dim twilight found in all Egyptian houses, forms a very pretty picture.'

"The apparatus which the scholar brings to school with him is exceedingly simple, consisting of a wooden slate, sometimes of thin iron; a leather case containing some reeds to write with, and, fastened to it, a little iron box, with a sponge steeped in ink.

"The teacher never teaches a whole class at one and the same time, but only one scholar. Every child in his turn comes up to the teacher, sits down by his side, recites what he has learned, shows what he has written, receives a new task, and resumes his place among the other scholars. The scholars commence by learning the letters and the numbers, with their values. They have to repeat them and write them till they are thoroughly acquainted with them. Then follow simple syllables commencing with consonants, and the syllables commencing with vowels. From this they progress to the study of words and phrases, mostly taken from the Koran. The teacher writes the words on the child's slate, lets him spell and pronounce them aloud, and then the child practises the writing. When the child can read words or short phrases, the teacher inscribes some characters on his slate in coloured ink; and the father, after having convinced himself of the progress made by his child, generally sends the teacher a present of one or two piasters. As soon as the child knows how to read, he commences to learn the Koran by heart, and as there is but rarely more than one copy of the sacred volume in a school, the teacher writes verse after verse on the child's slate to be learned by heart. All this learning is done aloud, and the noise resulting from it is considerable; still, discipline is rigidly maintained by a prompt and energetic application of the *jas flagelli*. The study of the Koran in the primary schools is merely mechanical, no explanation or commentary whatever being given. After a child has gone in this manner through the whole of the Koran, his education is considered finished, and, though his knowledge is limited, it must be stated that at any rate he has learned to read and write correctly.

"Arithmetic is but rarely taught in these schools, which are not under Government superintendence, for the simple reason that the teachers know very little of it themselves. If a child is obliged to have some knowledge of arithmetic, he studies it with a *rabani* or public weigher, or he is apprenticed to a merchant. Other subjects—such as history and geography—are not taught at all, although it is the intention to make a beginning in this direction in the Government schools.

"As will be seen from the above, the study of the Koran is the chief object of the Arabic schools, and reading and writing are only considered as means for reaching this object. Only very gradually does the primary school begin to assume a more practical character. This tendency of the school to become more and more a purely lay institution, is shown above everything else in the disappearance of the prayers which, during the first

half of this century, formed an important subject of instruction in all the schools, while at present they are only taught in some of the country schools.

"The number of children attending school—quite large in the cities—is small in the rural districts, where, in spite of numerous schools, the most profound ignorance reigns. The teachers of many of these schools, entirely isolated and separated from all intellectual intercourse, are frequently as ignorant as the poor *fellahs*—peasants—themselves; and then (in Egypt, as elsewhere) it does not suffice to have attended school in order to acquire a good elementary education; and as the method pursued does not develop the intellect, the result is, in most cases, that nothing of what has been sown in the school germinates and ripens. As the knowledge of reading and writing is closely united to a knowledge of the Koran, it gradually vanishes from want of exercise, and when the child has arrived at the period of manhood, but little of all he learned at school remains. Mr. Jules Simon has proved that in France one-fourth of the male population is illiterate at the age of twenty, while about one-eighth does not attend school; and this decrease is no doubt still larger in Egypt.

"Once a year, during the month of *Ramadan* (October), or the month of *Choulan*, preceding it, examinations are held; clothes and shoes, and occasionally a small sum of money, are distributed to the children. The moneys for such distributions being derived from the endowment funds, and a procession parades the streets, headed by the best scholars.

"Such is the actual state of the purely Arabic schools, which are now under the superintendence of the Government. Some of them are entirely independent of the Ministry of Public Instruction. These schools are exactly in the same state to day as they were centuries ago. With that tenacity and stability peculiar to Mohammedan Institutions, they have survived all the political revolutions through which Egypt has passed. They have not followed on the road of reform which Egypt has pursued since the reign of Mehemet Ali; or, rather, the Government, renouncing all idea of reform, has preferred to raise by the side of them other primary schools, resembling those of Europe. The only important innovation has been the introduction of a little elementary arithmetic; and even to this, the majority of the old schools have refused to submit, contenting themselves to teach their scholars the numbers.

"There are no schools for girls, with the exception of the schools for nurses at Old Cairo and of such as are supported by the Copts or the various European colonies. For years, the ministry has talked of opening an immense institution for the education of young girls; the plans have been made, and the work has even been commenced, but nothing more is being done.

"Among the higher classes, the girls are occasionally instructed by educated native women, or European governesses, but there is no public system of instruction for girls.

SUPERIOR ARABIC INSTRUCTION.

"The Mohammedan University of Egypt, El Azhar, is as old as Cairo, having been founded in the year 970, by the Fatimide General Gauhar, and its name, El Azhar, means the flourishing. The building was partially destroyed by an earthquake in 1302, but immediately restored and enlarged, and renovated in 1596. During the French invasion of 1798, the president—sheik—of El Azhar, was called upon to play a part in politics, for to him Bonaparte addressed himself to demand the surrender of the City of Cairo, and on the following day, the sheik published a solemn proclamation in favour of the French. Under the arches of this venerable building, Bonaparte, clad in Oriental garb, sat down with the learned sheiks, on the 20th of August of the same year, the birthday of the prophet, and recited verses of the Koran and an interminable litany on the life of Mohammed.

"The extent of the buildings may be judged from the fact that when, on the 21st of October 1798, an insurrection broke out against the French, fifteen thousand insurgents found a place of refuge within its walls, and did not surrender till Bonaparte brought artillery to bear upon it.

"The main building, the mosque, has an irregular pentagonal shape, and is surrounded on all sides by different buildings and courtyards, leaving only room for four gates. The

south-western gate is the chief entrance, and leads into a small court, from which an ancient portal opens into the great court, and which the mosque faces. This mosque is a vast hall, whose ceiling, blackened by age and the smoke of twelve hundred lamps, is supported by three hundred and eighty ancient pillars.

"El Azhar has always had a great fame, and thousands of students have come here from all parts of the Mohammedan world. Even at this day there are students from India and Soudan, each country or province establishing endowments for the support of their students.

"The students are distributed in *rivaks*, or *casas*, and *haraks*, or quarters, the latter corresponding to the country or province of the student. There are thirty-one *rivaks* and twelve *haraks*. Egypt, of course, sends the largest number of students and possesses the greatest endowments, but students come from Tunis, Algiers, Morocco, Sennaar, Darfour, Arabia, Syria, Asia Minor, Koordistan, and India. Though the buildings are so vast, they are not large enough to accommodate all the students, and those who possess private means—and they are, perhaps, the majority—live in the adjoining caravansaries.

"The Mohammedan religion has seventy-six sects, four of which only are orthodox, the other seventy-two being considered as heretics. These four orthodox sects are the Chaféites, the Malekites, the Hanéfites, and the Hambalites; taking their names from their founders.

"The chief sheik, or chief of the mosque, to whom all the others are subordinate, is appointed by the Government, and his office is considered as one of the highest in Egypt. He appoints the sheik for each *rivak* (hall), and is attended by a number of choristers, vergers, and ushers.

"There are 311 professors, 143 of whom are Chaféites, 97 Malekites, 70 Hanéfites, and only 4 Hambalites. Their pay is only raised by voluntary contributions from the students, their position being considered one of honour rather than of emolument. Many of them hold at the same time other offices, such as that of preacher in other mosques, and professors in the higher government schools.

"The students scarcely ever leave the mosque. El Azhar becomes to them an adopted country, to which they remain faithful all their life. While the European students hasten to leave the *alma mater* to enter active life, there is absolutely no limit but death to the studies at El Azhar, and a student with silvery beard and hair is no unfrequent occurrence in the republic of letters. The average length of time, however, which a student has to stay at El Azhar to finish his studies is two to three years, although many stay four to six years.

"Every morning all the students attend prayers, and then collect in small groups around their professors to receive their instruction. The course of studies at El Azhar is limited, because its object is solely to educate *fiki*, lawyers, and theologians. There are four divisions, or grades, of study, the first two comprising the preparatory studies, viz., grammar and syntax; the third, called '*aclm* and *tanhib*,' is the doctrine of the unity of God and his attributes; the fourth comprises law, and consists of learning by heart innumerable commentaries of the Koran, explaining the principles of jurisprudence.

"Besides the above-mentioned four studies, which are considered the most important, the following subjects are taught to some extent, rhetoric, prosody, logic, arithmetic, and mathematics.

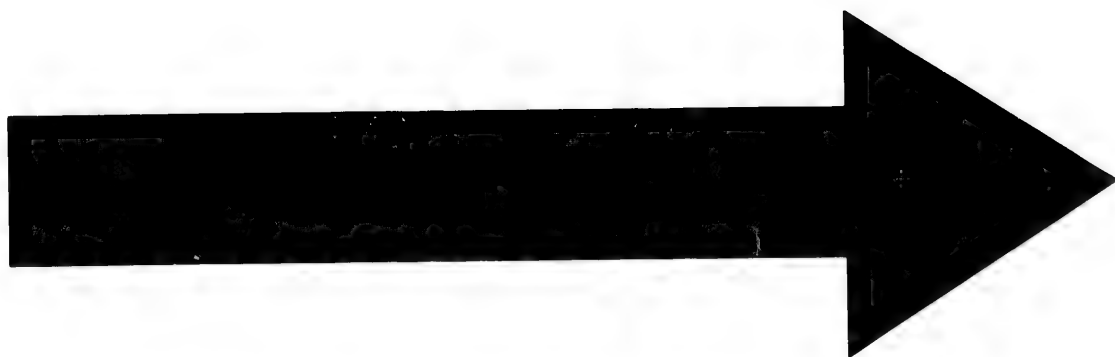
"There are similar schools connected with some of the mosques, but they are all more or less perfect imitations of El Azhar, and are not deserving of notice.

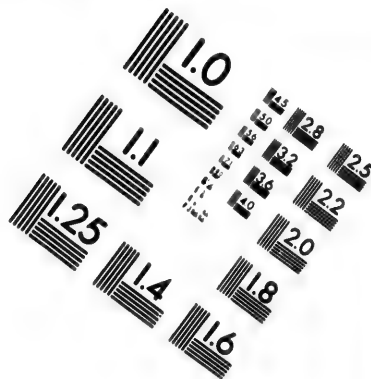
"The total number of students of El Azhar is about 10,000.

DENOMINATIONAL SCHOOLS.

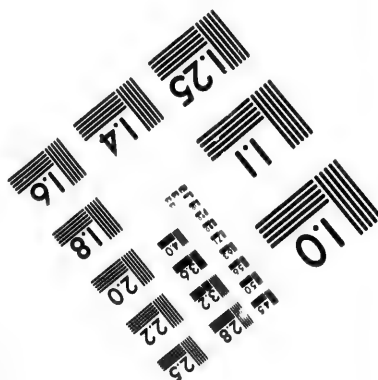
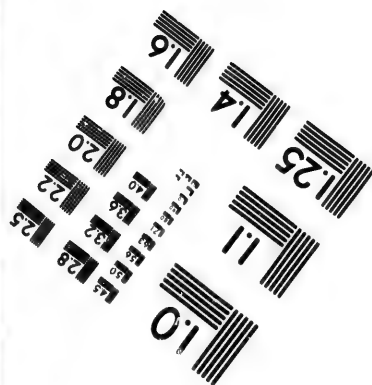
"Of these, deserve to be mentioned first, the primary schools of the Copts, of which there are quite a number. They resemble the *Kouttab* in every respect, with the only exception that instead of the Koran the Psalms and the Gospels are read and learned by heart, and that, in addition to reading and writing, singing is taught, confined, however, to the singing of a few religious hymns.

"With regard to one point, however, the Copts possess a decided superiority over their Mohammedan conquerors, in feeling the necessity of educating women; thus there





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are at Cairo two Copt schools for girls. The course of instruction in these schools comprises reading, writing, the fundamental rules of arithmetic, vocal music, and needle-work. These primary Copt schools are supported in the same manner as the Mohammedan ones.

"The Copts possess two colleges at Cairo, one at Hart Saggain and the other near the Metropolitan church. The former has three classes with 125 students and 8 professors. The course of study includes French, English, Italian, Arabic, and arithmetic. The latter, and by far superior, institution—the great college—numbers 243 students, with 12 professors and 6 assistant professors. It occupies a fine building, with spacious well-lighted and ventilated school rooms. The course of instruction comprises the Coptic language, Arabic, French, English, Italian, vocal music, arithmetic, elements of geometry, history, geography, and logic.

"The Jews likewise support a number of schools in Cairo and Alexandria; primary schools, where the children learn Hebrew and Arabic, reading and writing, and occasionally Italian, which language is of great importance to the Jews in their commercial transactions. Some of the Jewish primary schools are also attended by girls, while others are for girls exclusively.

"The largest educational establishment which the Jews have founded in Egypt is the college Darb el Jahoud, at Cairo. This institution founded in 1860, owes its existence to the liberality of Mr. Samuel Rubino. It is in every respect well managed and the pupils receive a good solid education. The course of study embraces Hebrew, French, Italian, vocal music, geography, cosmography, history, and arithmetic. The number of pupils whose age varies between 6 and 15, is 83, who are instructed by two rabbis and three professors, one of whom is at the same time president of the college.

"The few schools of the Catholic Copts are nearly all located in Upper Egypt, and are attended by about 220 scholars.

"The Syrian Maronites have three schools, differing but little from the *Kouttab*, with the exception of the Psalms and Gospels being used instead of the Koran, and the scholars sitting on benches instead of on the floor.

"The Syrian Greek Catholics have recently opened a flourishing school at Alexandria.

GOVERNMENT SCHOOLS ON THE EUROPEAN PLAN.

"As it has been said before, it was Mehemet Ali who began the work of reform in Egypt. He commenced by reforming the army, and went on to establish numerous schools, a military academy, an artillery school, a naval academy, an infantry school, and even a school of military music, but above all, a great college (to which Mehemet Ali sent his sons), which at one time numbered more than 1,500 pupils, and received the name "School of Princes." A school of languages was opened in the palace of Esbékieh, sixty select pupils of which were formed into a bureau of translation, which still exists, and somewhat later a school of typographical engineering was founded.

"All the schools founded by Mehemet Ali were based on the educational wants of a standing army of 150,000 men, and when the army, in 1841, was, officially at least, reduced to 12,000 men, the schools of every kind gradually declined, both in numbers and in efficiency, so that when Abbas Pasha, on ascending to the throne in 1848, had the original idea of holding an examination of teachers and pupils, he found that they rivalled each other in ignorance.

"Abbas's successor, Said Pasha, revived, in 1854, some of the schools, especially the school of medicine, and showed himself extremely liberal towards the schools of the European colonies, but the great work of reform was reserved for his successor, Ismail Pasha, who ascended the throne in 1860.

"He was the first Egyptian ruler who felt the necessity of not only founding a number of schools, but of an organic law of public instruction. Such a law was sanctioned by the Khedive in 1868. According to this law, all the public schools are of three grades, primary, secondary, and superior, and besides these, there are the special schools.

"With regard to the primary schools, the *Kouttab*, the law provides that arithmetic must be taught in all, and that in the larger cities they shall become, in the full sense of the word, preparatory institutions for the secondary schools, by adding to their pro-

gramme some modern language, and the elements of geography and history. The law also urges the parents to provide more liberally for the teachers of their children. . . .

"A school of mechanic arts was established by Ismail Pasha, and is now one of the most admirably arranged in Egypt. The course lasts three years, and the students have the very best opportunity to study the mechanic arts not only theoretically, but also practically, and manufacturers frequently apply to the director for students to become, after having finished their studies, foremen in various factories.

"The Polytechnic School is the largest and most important of the government-schools on the European plan. A spacious building contains the Ministry of Public Instruction, a preparatory school, the Polytechnic School proper, a library, the bureau of translation, and a large amphitheatre for public examinations. The whole building is built entirely in the modern style, and the arrangements for light and ventilation are perfect throughout. Most of the scholars are day-scholars, only the students of the Polytechnic School proper being boarders. The students choose between an English and a French division, in which the study of either of these languages is more thorough and serves as a means of conveying other knowledge. Connected with the Polytechnic School is a law-school, which no doubt is destined one day to exercise a great influence, when the Mohammedan code of laws shall be reformed. In this school not only Arabic law is taught, but also Roman and French law. One section of the Polytechnic School is devoted to book-keeping and surveying, and furnishes most of the employees in the Government offices."

There are also a number of other schools besides those connected with the missions.

Hon. R. Beardsley, the American Consul General in Egypt, writing in 1874, gives the following information on the present state of education in Egypt.

"The number of children receiving public instruction has increased from 3,000, in the time of Mehemet Ali, to 60,000 in the first years of the period, 1863-72. The number of scholars in the primary and preparatory schools is now (1873) 89,893, independent of higher and special instruction. This number of 89,893, in a population of 5,250,000, represents 173 schools for every 10,000 inhabitants. This proportion is less than in most of the European states, except in Russia, where the proportion is 150 to every 10,000.

"The obstacles in the way of public education are, however, great and exceptional in Egypt. Among the 89,893 scholars in the primary schools, there are only 3,018 girls, all, or most of whom are of non-Mussulman families; thus one-half of the population of Egypt is, or has been until now, beyond the influence of education, it being one of the social dogmas of the east, that women are not worthy of the blessings of education.

"A favourable change involving an entire revolution of oriental ideas, appears, however, to be guaranteed for the near future. Breaking through the secular prejudices of the country, which have not even the excuse or sanction of religious dogma, the Khédive has resolved that the future women of Egypt shall not be deprived of the blessings of education. By his order, the instruction of girls is receiving the most careful attention of his Government. One school, the first in all the Orient for Mussulman girls, has already been inaugurated at Cairo, and extensive educational establishments of a similar nature are in process of organization. It will be no light task to change woman's social status in the Orient, and emancipate her from a domestic servitude, which has reduced her to a condition of intellectual imbecility; but the Khédive has determined that no efforts of his shall be wanting to accomplish this great work in Egypt. The progress of this social revolution, for it can be called nothing else, will be regarded with unusual interest, for on its success depends the solution of a question which heretofore has been a stumbling-block in the way of all Oriental progress towards modern civilization.

"A comparison of the number of boys attending the primary schools, with the total number of boys old enough to attend them, gives the following results, viz:—after deducting the male children of foreigners from total number of boys of sufficient age to receive instruction, there remained 350,009 boys old enough to attend the public schools, while the number in actual attendance is about 83,000, being a proportion of 23.6 per 100, a proportion inferior to that of some of the European states, but greater than that of Turkey (10.5 per 100), or Russia, (5.7 per 100) and approximating to that of Italy (31.9 per 100). In 1862, under the administration of Saïd Pasha, the appropriation for public

instruction amounted to 750 purses (\$18,750). In 1872, a sum of 16,400 purses (\$410,000) was appropriated for the same work, besides several subventions by the Khédive and his sons, to independent schools, native and foreign.

"The Egyptians are eager to learn and are susceptible of education to a high degree, and if public instruction receives the official encouragement in the future that it has during the past ten years, Egypt will soon rank with many of the European states in educational attainments.

"It will be observed, 1, That the national schools are systematically graded from preparatory and normal up to the higher grades of literature and languages, arts and sciences, medicine and surgery, and polytechnic; 2, That 51 students are being educated in Europe, at Government expense; 3, That, at Cairo, Alexandria, and the chief towns and villages, there are 2,067 schools, with 2,381 teachers, and 77,292 pupils; 4, That each scholar pays from one to four piasters a month, according to his means, the piaster being equal to 5 cents of our money; and, 5, That these schools are all under the control of the Department of Public Instruction. There are also in the public schools 5,010 scholars, who are being educated partly at the expense of the Government and partly at the expense of religious estates, making a total of 82,302 students in the national schools. Under the head of European schools are classed all independent schools; these are mostly under missionary auspices, and the number of scholars here given at Cairo and Alexandria, is 5,978, which, added to 82,302, the number of scholars in the national schools, makes a total of 88,280 scholars. Besides those schools, however, there are the many missionary-schools in Upper Egypt, and the regimental schools in the army, of which no mention is made in the report in question.

"It is safe to say that the number of scholars in all the schools in Egypt, will not fall much short of 100,000. A noticeable feature in this report is the mention of the establishment of a school for girls, which is an innovation of oriental thought and custom almost too great to be realized."

The Rev. Horace Eaton writing from Cairo, in 1874, says:—

"The Sultan supports a large class of young men in course of training for engineers, translators, and other agents of the Government. The Khédive of Egypt is also building an institution on the banks of the Bosphorus for female education. The mosques at the capital are very richly endowed by bequests, so that a large portion of the land at Constantinople pays a yearly tax, which is designed to furnish means of education to every child of either sex, so far, at least, as to fix in their memory a portion of the Koran, and certain forms of prayer which the law requires them to repeat five times a day. . . .

"All the different Christian bodies have schools of their own, which each supports without aid from the Porte; and the same is true all through the empire. The first impulses were given to education by foreigners, Protestant and Roman Catholic missionaries taking the lead. This has provoked the natives to improve their own system, but the schools under foreign patronage still seem to raise the standard of education.

"Robert College, founded by C. R. Robert, Esq., of New York, stands upon a height overlooking the Bosphorus, a site not equalled for beauty by any other College in the world. It was founded in 1861, and has 16 teachers and some 200 pupils, commands the confidence of all Christian communities, and the respect of the Mohammedans, and promises great intellectual blessings to the Ottoman Empire."

STATE OF EDUCATION IN THE ARGENTINE REPUBLIC.

5. ARGENTINE REPUBLIC.—Ex President Sarmiento, now Director-General of Public Instruction, sent a large number of reports and text-books to the Centennial Exhibition. The whole collection included school reports and statistics, laws and decrees relating to education, and works on science, education, law, politics, finance, and history; specimens of newspapers, works in general literature; school books, guides, official documents, &c.

From an interesting address delivered by Senor Donna, Chargé d'Affaires at Washington, before the National Educational Association at Baltimore, and the International Conference of Educationalists at Philadelphia, I make the following extracts:—

"Many Americans know that the Senor Sarmiento has devoted all his life to educational matters. From the school room, he was sent to this country as its Diplomatic Representative, the Argentine Government believing *then* as it now believes, that the secret of the happiness and greatness of the American people is closely connected with their system of education. When Senor Sarmiento was in this country, a presidential election took place in the Argentine Republic, and he was elected to the Presidency by the unanimous vote of fourteen states, which office he honourably filled during six years, the duration of our presidential term.

"When he was President he appointed as Minister of Public Instruction, Dr. Avellaneda, a young man, 30 years of age, whom for his great talents and great achievements in behalf of education, the Argentine people called, at the expiration of Senor Sarmiento's term, to the Presidency of the Republic. The cause of education is a national one in the Argentine Republic—and we always ask our public men to show their ability in educational affairs in preference to any other of national interest.

"Senor Sarmiento, after the expiration of his presidential term, accepted the humble and honourable position of General Superintendent of the Schools of the State of Buenos Ayres—one of the fourteen States that compose the Argentine Union, or Republic, or Confederation.

"The American school system of education is our own system, as the constitution of the United States is our national constitution.

"The administration of Senor Sarmiento was a very faithful one for the cause of education. Fourteen large colleges, two normal schools, three schools of agriculture with their model farms, two schools of their mineralogy, one academy of science, one astronomical observatory with Professor Gould as director, and 140 popular libraries. All these institutions were established with the six years of his administration.

OUTLINE OF ARGENTINE SYSTEM—POPULAR EDUCATION.

"1. Common education. Secondary education. Higher education.

"1. Common education, under the control of the State, and municipal governments. Definition. The elementary training of man; his initiation into the secrets of intellectual and moral life. National government; co-operation by means of exhibitions, books, models, apparatus, supervisors, or superintendents.

"Obligatory and Gratuitous Education. The principle is not a uniform system—we are in want of the necessary agencies to enforce it.

"School fund—capital not to be touched; the interest to be employed in the acquisition of lands and construction of school buildings. State constitutions.

"Notwithstanding the majority of the Argentine people are Catholics, the schools are not in the hands of the priests, and those children that are not Catholics are not compelled to attend to the teaching of the Catholic religion.

"The present Minister of Public Instruction, Dr. Leguixamon, in his report to Congress, says:—'Notwithstanding that every man ought to have one religion, and that every one wishes to have it taught to his children, the public school, supported with the income of men belonging to different sects ought not to teach one religion to the exclusion of the others, without having at least the consent of all the parents, especially in communities like our own, where advancement depends in a large scale on European immigration belonging to different creeds.'

"In some States of the Argentine Republic, there is a logical division and classification of elementary teaching, but it is not a uniform system. Dr. Leguixamon in his report says:—

"The American system ought to be consulted exclusively on this subject. Its graded schools, (Primary School, Secondary School, and High School), demonstrate the advantages of the division of teaching since this division of labour multiplies and ameliorates the production.'

"Notwithstanding all the facts, says the Minister of Public Instruction, we have got to do a great deal to place the Argentine woman in the same rank as the American woman.

Her most noble work is undoubtedly the education of that great Republic, whose free institutions are the glory of mankind.

"The establishment of fourteen Normal schools for the training of women, is a proof that the education of women is considered a national necessity.

SECONDARY INSTRUCTION AND HIGHER EDUCATION.

"1. State government.

"2. National government—by fourteen different colleges,—one in each State.

"General plans of studies.—Duration six years.

"Libraries.—Cabinets of Mathematics; Physics; Laboratories of Chemistry; Museum of Natural History.

"National University of Cordoba—Philosophy and Grammatical studies.

"1. Law, Mathematics, Medicine, Physical and Natural Sciences.

"2. Two Schools of Law.

"4. Two Schools of Mineralogy.

"3. Three Schools of Agriculture.

"5. School of Painting.

"Next to the duty of self-preservation, there is no higher, no more sacred duty which a nation has to fulfil, than to promote national education.

"Now, let me read in conclusion what Niebuhr said about the profession of schoolmaster, and remember he said it after he had been Prussian Ambassador at Rome:

"The office of a schoolmaster, in particular, is one of the most honourable, and, despite all the evils which now and then disturb its ideal beauty, it is for a truly noble head, the happiest path in life. It was the path which I had once chosen for myself, and how I wish I had been allowed to follow it."

"Argentine Confederation, federal republic:—*Area*, 515,700 square miles; *population*, 1,736,922. *Capital*, Buenos Ayres; *population*, 177,787. Minister of Justice, Public Worship, and Public Instruction, Dr. D. Onesimo Leguixmon.

"The last report is dated May 1, 1875, and forms one of a set kindly transmitted to this office by the Argentine chargé d'affaires at Washington, Dr. G. Videla Dorna.

"*Primary Instruction*.—Number of children between the ages of six and sixteen, 468,937; number attending school, 112,223; proportion of children attending school to entire population, one in every 19.87.

"Number of schools, 1,816, of which 1,327 were public, and 489 private. Number of public schools for boys, 705; for girls, 294. Number of private schools for boys, 167; for girls, 112. Number of mixed public schools, 328. Number of mixed private schools, 210.

"Number of pupils, 109,941, of whom 85,672 were in public schools, and 24,269 in private schools.

"Number of teachers, 2,868, viz., men, 1,593, and women, 1,275. Of these, 1,828 were in public schools, and 1,040 in private schools.

"*Secondary Instruction*.—Number of colleges, 17; number of students, 453.

"*Superior Instruction*.—University: number of faculties, five; number of students of law and political economy, 434; of medicine, 303; of mathematics, 98; of national sciences, 100; of philosophy, 560.

"*Professional Instruction*.—1 school of agriculture, with 27 students; 1 business college with 186 students; 2 industrial schools, with 98 students; 1 school of drawing and painting, with 50 students; 1 school of music and elocution, with 360 students; 4 normal schools, with 53 male and 321 female students.

"*Popular Libraries*.—Number of libraries, 156; number of readers in 76 of these 77,109; number of volumes, 64,878; estimated value of books, \$99,449.77; number of libraries established in 1874, 9."

STATE OF EDUCATION IN THE REPUBLIC OF CHILE.

6. REPUBLIC OF CHILE.—Next to Brazil, this country had one of the best general exhibits of the South American States. The educational features of the exhibit were unimportant, but, yet they included a very extensive collection of specimen minerals, as

well as a large number of text-books used in the schools and colleges in Chili; annals of the University, literary and scientific periodicals, and reviews and miscellaneous Chilian works in general literature and science. The collection of native woods and agricultural specimens from the Normal school farm were highly interesting.

From a recent letter in the *New York Tribune* from Santiago, on "Education in Chili," I select the following facts:—

"In 1865, the number of children attending school in Chili was more than double in 1843. In the last decade the progress has been considerable. There were last year, (1875) 806 public schools with 62,244 scholars, and 478 private schools with 23,198 scholars. Accordingly there were in the Republic 1,284 schools, wherein 85,442 children were receiving elementary education, the proportion to the whole number of children of suitable age being 1 to 4.94. The Government paid for primary education \$715,418; the municipalities only \$65,000. The sum paid for public education was 70 cents per head. In Spain the amount so expended in 1866 was only 20 cents; in France, (1864) 31 cents; in England, (1870) 40 cents.

"At present the children in primary schools are taught reading, writing, simple arithmetic, geography, linear drawing, catechism and singing. In some of the better schools lessons are given on hygiene and natural history. Besides the foregoing, girls are taught needlework, and boys receive elementary notions of physics, chemistry and geology, as applied to agriculture. The text-books are such as have received the sanction of the Government. They are mainly compilations made by Chilians from Spanish, French and English books, and are printed and published in the country. One or two New York firms publish a few text-books which have been officially approved in Chili. Many of the teachers' books of reference, as well as the maps and books given as prizes, are from New York houses. The school-houses are private dwellings which have undergone alteration. The furniture is invariably defective.

"There are only seventeen male and seven female schools for higher education. The institutions are called lyceums. Some of them are partially endowed, but the Government makes good any deficiency arising from want of income. Instruction in all these schools is entirely free. Besides the lyceums, there are in the larger cities excellent English and German schools. There are also schools supported by the Masons, which are non-sectarian. The studies at the lyceums are generally as follows: Arithmetic, physical geography, linear drawing, Spanish grammar, catechism, French or English book-keeping, hygiene, history, and the elements of algebra and geometry. In Copiapo, instruction in mining, engineering and mechanics is also imparted. In 1873, the total number of students at the lyceums was 3,203.

"The National Institute at Santiago is divided into two branches—the preparatory and the university. The former is practically a higher 'lyceum,' while the other is alone entitled to confer professional degrees. In the lower branch, the ages of the pupils range from 9 to 23. The professors are paid salaries running from \$300 to \$1,200; most of them receive only \$600 to \$800. In the University, the studies correspond with those in the leading American Universities. There are 35 professors, two of whom are paid \$3,000 per annum; the remainder receiving mostly \$1,000. The number of degrees conferred in 1874, was as follows: Bachelors in humanities, 139; in medicine, 11; in law, 72; licentiate in Medicine 18; in law, 40. Theological instruction is not given in the University, but is imparted in Seminaries, which receive \$32,000 annually from the State. Chili has also a Military Academy, which costs the State \$31,000 per annum, and a Naval School, which entails an annual charge of \$15,000. There are four Normal Schools—one male and three female."

STATE OF EDUCATION IN THE REPUBLIC OF MEXICO.

7. REPUBLIC OF MEXICO.—The most interesting part of the Mexican display, is that relating to the historical remains and art antiquities of that curious people the Aztecs. The Mexican pavilion itself is constructed in the Aztec style of architecture as it existed

in times of the Montezumas, before the conquest of Mexico by Cortez. The exhibit also contained quite a collection of text-books for schools, books on various subjects, forms and models, &c. In the official catalogue of the Exhibition at Philadelphia, seventeen pages are devoted to the department of "Education and Science." It relates chiefly to an account of the state of education in the Republic, report of libraries, description of the text books exhibited, account of the literary societies in Mexico, maps and charts, &c.

"Mexico, federal republic: *Area*, 1,030,442 square miles; *population* 9,176,082. *Capital*, Mexico; *population* 230,000.

"There is no national system of public instruction, each state managing its own educational affairs. In 1875, however, the central government had (for the first time) a report prepared, giving an account, statistical and historical, of the schools in all the states. This report, as well as a manuscript abstract from it, has been transmitted to the United States Educational Bureau by Hon. J. W. Foster, United States Minister at Mexico. Date of Report, March, 18, 1875. The same information is contained in the official report of the Mexican exhibit at the Centennial.

"*Primary Schools* sustained by the federal and state governments, 603; sustained by the municipalities, 5,240; by private corporations, 378; by religious associations, 117; private schools in which tuition is paid, 1,518; schools without classification, 184; total primary schools, 8,103; i.e., about one primary school for each 1,110 inhabitants. Attendance during the year, 349,000, or somewhat less than one-fifth of all the children between the ages of 6 and 13. Total amount expended for primary instruction, \$1,632,436, of which sum \$1,042,000 was furnished by the municipalities, \$417,000 by the general and state governments, and \$173,000 by individuals and private corporations.

"*Secondary and professional schools*.—Seventy-eight colleges, (54 civil and 24 ecclesiastical;) in 33 of these law is taught, medicine in 11, engineering in 9, agriculture in 2, and theology in 24; total number of students, 13,137; total expense of the government colleges, \$1,100,000. Fifteen higher schools for girls, 1 school of mining, and, school of the fine arts."

STATE OF EDUCATION IN THE PROVINCE OF QUEBEC.

8. PROVINCE OF QUEBEC.—The educational exhibit from the Province of Quebec was almost exclusively confined to models of various public buildings, chiefly devoted to the purpose of education, mentioned on pages 40 and 41 of this report. The October number of the *Journal de L'Instruction Publique*, Quebec, makes the following remarks in regard to the Quebec educational exhibit, and the absence of the educational exhibits of various countries:

"Several foreign countries have not sent educational exhibits to Philadelphia, some on account of the difficulty of transportation and others, no doubt, owing to the expense, as private individuals cannot be relied upon to bear the cost of an exhibition of this character. Thus Germany, Austria, and France are feebly represented, an error which, in view of the utility of educational expositions as shown at Philadelphia, will not fail to be repaired at the next exposition at Paris, in 1878.

"It is more difficult to understand why, in this department, all the states of the American Union have not shown equal pride. The States of New York, California, Virginia, and those of the whole south, shine only by their absence. This absence probably had several causes, but the most potent, quite likely, was found in the exigencies of local politics or in an exhausted treasury. Thus, the visitor interested specially in the question of schools does not find at Philadelphia all the elements necessary to a complete study of the different American methods. On one side, it would do too much honour to the country should we judge it by the brilliant exhibition of Pennsylvania or that of Massachusetts; and, in the other, we would deceive ourselves if we should conclude from the absence of certain states that their condition is behind-hand in the matter of public education. These would be able, perhaps, to appear well if they made the attempt, but

circumstances prevented them from displaying the extent of their resources in this direction.

"The same reflection applies in a certain measure to our own country. In the Canadian department, the educational exposition of the Province of Ontario, which is not excelled by any other of the same kind, sums up and represents to the eye of the stranger the best part of our system from Vancouver to the Island of Prince Edward; but no one should thence conclude from this exposition of one section of the country that the other provinces, Nova Scotia, New Brunswick, and above all Quebec, could not make, if they should undertake the work in earnest, an equally interesting educational exposition. The Government at Toronto has in hand some two millions of dollars with which it did not know what to do, and so put a large sum at the disposal of the bureau of public instruction: that explains all.

"We say frankly that the educational exposition of our province, as of several of the states of the American Union, is a failure. Our exhibit consists only of an album containing some photographs of our great institutions, and in the display of several models in wood of the buildings of the same. It is very little, we acknowledge it. Still, we must say, that while this album and these models are only a small contribution, they are so installed as to appear badly. By some fanciful arrangement the album is placed far from the models upon an isolated desk, where it can be found only by chance; whilst the models are installed, those of the colleges in the Canadian section of the Main Building, in a good place, and those of the convents in the Women's Department, a mile from there, in the midst of needlework! The extent of our exhibit hardly justifies this separation, this fanciful classification!

"We will not now undertake to show what we would have been able to do had we taken the matter up in earnest; all those who are concerned in the work of education in this province well know that our colleges, our convents, and our academies, can furnish a collection of books and apparatus that is not excelled by any like institutions abroad. The material of our primary schools might, perhaps, suffer by a comparison, but as a whole even this comparison would not be unfavourable to us. It now becomes the duty of the government and of the legislature to decide whether the Province of Quebec shall endeavour to make amends for her failure at Philadelphia, by sending an educational exhibit worthy of her to Paris in 1878.

"If it is possible to retrieve our lost credit it should be done; for, hereafter, to remain behind would be to acknowledge our inferiority. Educational expositions have assumed so much importance in our day that a country which desires to keep a good name must take part in them.

"Besides, to attract foreign emigration and keep our credit in the European market we should take all proper means to make known our advantages.

"There is another consideration still more grave. The Province of Quebec is French and Catholic, and with us the clergy control public instruction. It rests upon us to prove that our nationality and our religion do not prevent us, as certain fanatics are constantly proclaiming, from being the friends of progress and learning, and that we are able to march forward at an equal pace with the English provinces, whose success at Philadelphia has done so much to honour the Canadian name."

In connection with these remarks on the school exhibit of Quebec and Ontario, I would direct attention to the opinion expressed by M. Buisson, the French Education Commissioner at Philadelphia, on these same exhibits. They will be found on pages 25 and 26 of this report.

From the last report of the Education Department of Quebec, we gather the following particulars:—

"A work which we had occasion to notice a few days ago, of which the Hon. Mr. Chauveau is the author, furnishes remarkable evidence of the progress of education in this province during the last quarter of a century. It is satisfactory to know that this progress is continuous, and it is even more rapid than the increase of the population itself. According to the recently published report of the Superintendent, we find [during the five years from 1871 to 1876 inclusive, there was an augmentation in the number of pupils

attending our various schools, of more than 11 per cent.—the increase of the population being only 8 per cent. The actual number last year was 247,696. The number of schools under the direction of commissioners or trustees has increased from 3,790 to 4,030 in the last two years. In the same time the average attendance rose from 171,226 to 193,714. The progress made in the last two years, may be seen in the statement that in 1857 there were 2,573 commissioners' schools in operation, against (as already mentioned) 4,030 in 1876.

"It must not be supposed that we have reached perfection. On the contrary there is still need for a great deal of improvement in many respects. In the autumn of 1874, the inspectors received instructions to pay a special visit to all the academies and model schools, so as to ascertain how these institutions discharged their obligations to the public. The result was that several of them were found deficient, and were removed from the list of subventions. One chief cause of their failure, was a kind of foolish ambition on the part of the founders, which burdened them with a name to which they had no right, and which imposed duties which they could not fulfil. We have ourselves known schools, virtually elementary, which were complimented by the name of model, model schools which were known as academies, and academies which were dubbed colleges. Such a system of nomenclature places the institutions in question in a false, and sometimes ridiculous, position; though in some cases it may lead to such laudable efforts as may entitle them to the name. But nothing tends so much to bring the cause of education into contempt, as to place a cheap, and therefore inferior, teacher in charge of one of these high-sounding establishments. The beggarly remuneration which teachers receive for their work in some parts of the province, is one of the great drawbacks to sound education. Some of the salaries paid are so low that, if the fact were not stated in black and white, we could hardly believe that trustees could be found to offer, or teachers to receive them. There are in the province 115 male teachers, and 1,722 female teachers, who labour for an annual stipend of less than \$100! There are 374 males, and 2,544 females, who receive less than \$200 a year. Salaries of from \$200 to \$400 are given to 480 male and 345 female teachers; and those who receive the prizes of the profession, salaries exceeding \$400 a year, number 219 gentlemen and 50 ladies. It ought to be mentioned, however, that of the 1,722 female teachers who receive less than \$100 a year, 787 belong to religious communities. This still leaves 935 lay female teachers who obtain only that sum. Of the whole number of male teachers, moreover, 536 are religious by profession, which reduces the number of male lay teachers who receive less than \$400 to 318. This is certainly enough to suggest the necessity of more ample remuneration for a class of persons who, by courtesy at least, are ranked among educated people. It may be remarked that the ill-paid teachers are found almost invariably in the country districts. Any one who glances at these figures, need not wonder if he sometimes hears complaints from inspectors and others, of the want of knowledge and skill by which such teachers are characterized. The wonder is rather that, for such rewards, persons should be found at all to undertake such laborious and responsible duties. The first requisite for any marked improvement in the rural education of this province is to rectify this absurd injustice.

"As to higher education, we see that there are twenty-one Roman Catholic industrial colleges, attended by 3,461 pupils; and one Protestant institution of the same kind, with 160 pupils. Protestants, it must be remembered, obtain their commercial education in our high schools. The progress which has been made in this branch of education in late years, is very marked. In 1867, there were only 6,713 pupils learning book-keeping; in 1876, this number had grown to 13,383. In most of the schools and colleges it is now customary for a commercial course to precede the classical course, and this innovation has been found to work well. English and French are taught with equal care in almost all the schools. General and Canadian history and geography, also receive more attention than formerly. The ordinary branches of education—arithmetic, grammar, dictation, &c., are taught in all the schools. As to the higher branches, the reports of the inspectors are, in the main, favourable. An impetus has been given to the teaching of design, and the Hon. Mr. Ouimet quotes largely from the report published by the committee appointed by the Council of Arts and Manufactures. It is now a part of the

regular course in all the schools of the Christian Brothers, and there is hope that, before long, the example will be followed.

"Among the reforms suggested by the Superintendent, are the augmentation of teachers' salaries, already referred to; the establishment of a depot for books, maps, and other school appliances, and of a scholastic museum; the construction of school buildings according to the principles of hygiene and the demands of comfort; the adoption of the savings bank system in connection with schools; the general use of a text-book on agriculture, with some instruments, when needed, in horticulture and apiculture; the continuous preservation of the school archives; and, in the education of girls, a more practical preparation for their mission in life, than which at present prevails even in the best seminaries. Every one of these subjects is well worthy of consideration, but just now we can do no more than make mention of them."—*Montreal Gazette*.

STATE OF EDUCATION IN THE PROVINCE OF NOVA SCOTIA.

9. PROVINCE OF NOVA SCOTIA.—The Nova Scotia educational exhibit merely consisted of a few text-books, school photographs, and work from the Blind Asylum at Halifax. They were good as far as they went, but did not do justice to the Educational Status of the Province in the Dominion.

NOVA SCOTIA: Area, 18,660 square miles; population, 387,800. Capital, Halifax; population, 29,582. Superintendent of Education, Rev. A. S. Hunt, M.A. Report, March, 1877.

"Number of school sections, 1,754; number of school sections having no school any part of the year, 186; schools in winter, 1594; schools in summer, 1,744; teachers in winter, 1,740; in summer, 1,881; number of pupils registered at school in winter, 77,593; number of pupils registered at school in summer, 82,034; number of children at school for some portion of the year, 94,162; proportion of present population at school for some portion of the year, 1 in 4; annual expenditure for primary schools, \$605,816; number of county academies, 10, with 47 teachers, and 2,812 students; number of special academies, 7, with 38 teachers and assistants, and 656 students; number of colleges, 6, with 32 professors and 211 undergraduates, and 129 in partial course; one Normal School, with 4 teachers and 139 students; one Model School, with 10 teachers and 700 pupils.

"Total Educational Expenditure.—Public schools, \$619,015; Normal and Model School, \$8,714; special academies, \$55,269; colleges, \$34,374; total, \$717,374."

STATE OF EDUCATION IN NEW BRUNSWICK, PRINCE EDWARD ISLAND, BRITISH COLUMBIA, AND JAMAICA.

The other provinces of the Dominion had no educational exhibit at Philadelphia, although they did well in other respects. I should, however, regard this report as incomplete did I not include them in the exhibit of educational progress which this report contains.

In the Report of the Canadian Commissioner on the International Exhibition, mention is made, in very complimentary terms, of the lumber exhibit or trophy contributed by Quebec, New Brunswick, and British Columbia; the coal display of Nova Scotia, British Columbia and the Saskatchewan; the "gold column" of British Columbia, "representing a mass of gold of the value of \$37,000,000, obtained within the last thirteen years;" the excellent collection and management of the geological exhibit of Canada, illustrated by an admirable special catalogue, "the very striking display of the Ontario Education Department, provided by the Hon. Mr. Crooks;" the show of agricultural implements which "attracted close attention and cordial praise;" the machine tools, spoken of

as of high value, on account of "the excellence of their finish, the solidity of their parts, and the novelty of their construction." In agricultural and dairy products too, the Canadian display was most creditable."

In connection with the Educational Statistics of the several provinces which follow, it is gratifying to be able to note the fact that the progress indicated by them is most marked and creditable to the provinces concerned. The following are the statistics taken from last year's reports in each case:—

10. NEW BRUNSWICK : *Area*, 27,105 square miles ; *population*, 285,594 ; *Capital*, Fredericton (Report 1876).

Number of public schools, 1,174 ; number of teachers, 1,217 : males, 452, females, 765 ; number of pupils, 48,436. Teachers' salaries : first-class male, \$571 ; second-class male, \$365 ; first-class female, \$348 ; second-class female, \$260 ; third-class male, \$258 ; third-class female, \$191. Provincial grants for education, \$142,100 ; total expenditure, \$201,257. Superior schools, 51 ; pupils, 2,715 ; grammar schools, 13 ; pupils, 797 ; Normal School, 1 ; students, 118 ; expenditure for school-houses, grounds, etc., from 1872 to 1876, \$777,735.

11. PRINCE EDWARD ISLAND : *Area*, 2,173 square miles ; *population*, 94,021 ; *Capital*, Charlottetown (Report, 1876).

Number of children of school age, 22,610 ; number of public schools, 400 ; number of pupils, 15,431 ; boys, 8,150, girls, 7,281 ; average attendance, 8,799. Paid for salaries of teachers, \$51,472 ; average salaries of male teachers, \$146 to \$324. Grammar schools, 17 ; Normal School, 1, with 79 pupils, and 75 in the Model School.

12. BRITISH COLUMBIA : *Area*, 213,000 square miles ; *population*, 10,585. *Capital*, Victoria, V. I. (Report, 1875-6).

Number of public schools, 40 ; number of teachers, 56,—males, 27, females, 23 ; salaries of teachers, \$310 to \$840 ; number of pupils, 1,685,—boys, 697, girls, 778 ; average attendance, 980. Paid salaries of teachers, \$32,220 ; school-houses, repairs, etc., \$25,269 ; total expenditure, \$63,691. The Provincial Superintendent and Board of Education are authorized to purchase and distribute text-books and apparatus at such prices as may be fixed by the Board.

I regret that I have not been able to obtain recent educational statistics from Newfoundland or Manitoba ; but I know that these provinces are also making progress. The following information in regard to the leading West India Island I have inserted in connection with the North American Provinces :—

13. COLONY OF JAMAICA : *Area*, 6,400 square miles ; *population*, 506,154 ; *Capital*, Kingston ; *population*, 35,000 ; *Inspector of Schools*, John Savage ; date of report, December 19th, 1874.

Elementary Schools.—Under Government inspection, 500 schools with 43,135 pupils on the books, and an average attendance of 25,160, and an increase from Government grants and school fees of £18,795. Not under Government inspection, 15 schools, with 579 pupils on books, and an average attendance of 382. Total of elementary schools, 515, with 43,714 pupils on books, and an average attendance of 25,542.

Government Schools.—Two schools with 286 pupils on books, and an average attendance of 156 ; income, £612 ; expenditure, £637.

Endowed Schools.—Twenty-five schools with 1,643 pupils on books, and an average attendance of 1,188 ; income, £5,934 ; expenditure, £5,101.

Normal Schools.—Seven schools, with 113 pupils on books, and an average attendance of 112 ; income, £4,194 ; expenditure, £3,929.

Grand Total.—Schools, 549 ; aggregate number of pupils on books, 45,756 ; average attendance of pupils, 26,998 ; total income, £29,555.

Estimate of the total cost of all the schools in Jamaica, in 1874, £41,767.

PART XII.—MISCELLANEOUS EDUCATIONAL EXHIBITS OF AMERICAN STATES.

A few only of the South-Western and Southern States contributed any school exhibit to the Centennial, and those sent were very meagre indeed. Various causes may be assigned for this omission. The principal ones were—1. General apathy of the people. 2. Absence of educational efforts in former years. 3. The unsettled state of the principal southern states. The following are the states which had but small school exhibits at the Centennial. I have condensed the account of them from the *American Bookseller* for 1st August, 1876 :—

"1. MARYLAND.—From a school map shown in the Maryland section, we get a very good idea of the distribution of schools for white and coloured children. From it we learn that there are in the State 1 524 white schools with 120,523 pupils, and 322 coloured schools with 105,760 pupils, nearly as many coloured children as white, with but one-fifth as many schools. This is accounted for by the fact that coloured schools are only supported in the cities, where they are all large. The State Normal School makes a very fair exhibit of the examination papers for the past ten years. There are also good specimens of Map Drawing from the Normal School, and photographs of the building. The Baltimore City College shows some very good work, and that shown from the Western Female High School, and the public Grammar Schools, shows great care and proficiency. There are large pictures of the beautiful buildings of the Eastern and Western Female High Schools, of the Baltimore City College, and of one of the Grammar Schools of the city. This small exhibit of school buildings is more than compensated for by a collection of designs for frame, brick, and stone school-houses, prepared by the State Board of Education, and largely followed throughout the State. Specimens of the school furniture in general use are shown, also sample copies of the text-books. The Maryland Institution for the Blind is represented by a case of pretty work in worsted, beads, wax flowers, etc.

"2. KENTUCKY exhibits very little of school work, but Professor Henderson, the State Superintendent, in a brief but comprehensive account of the schools of the State, shows that the State has made great advances in the work of popular education within the past few years. The country schools are in very good condition, and nearly all of the larger towns have efficient graded schools, and either separate High Schools, or High School grades in the Grammar departments. Louisville has a good Normal or Training School, and there are Normal classes in several other towns. The coloured schools are provided for by a State Fund, and in most of the cities municipal appropriations are made for their support.

"In this section, the American Printing House for the Blind, located at Louisville, make an interesting exhibit of plates and books, music, maps, etc., for the blind. The design is to furnish such educational works for the blind as private parties could never undertake to produce. The books already printed, some in raised letters and others in points, include primers and readers, a geography and other school books, some of Shakespeare's plays, Robinson Crusoe, Whittier's Snow Bound, and other popular poetry and stories.

"3. MISSOURI.—The great State of Missouri makes a very meagre exhibit, which is confined almost entirely to St. Louis, only thirty District Schools outside of the city being represented. The most interesting portion of the St. Louis exhibit is the work of the thirteen Public Kindergartens, consisting of weaving, sewing, paper cutting and folding, stick-laying, peas-work and modelling. The children are from three to seven years of age, and are divided into classes of from twenty to twenty-five.

"Of Grammar School work, two classes are exhibiting, the first embracing the best tenth of all papers, the other comprising the papers of entire classes. The Drawing is excellent, the Penmanship not near so good, the best of it being in German. The photographs of all the school buildings and of the interiors of the Kindergarten rooms add to the interest of the whole.

"4. TENNESSEE shows photographs of her Normal School at Nashville. The cities of

Memphis and Nashville show some creditable work in the common branches, but there is no exhibit from the country schools. Last year eight counties reported no schools for want of funds.

"In the same section is the exhibit of the Hampton Institute of Virginia, and the Fisk University, in Nashville, Tenn., displaying views of the buildings, some of the agricultural products, and samples of the handiwork of the students. There are also specimens of drawing, writing, essay writing, and other school work, all showing great aptitude and earnest effort. Both of these institutions are for coloured people. The American Missionary Society, which founded them, has five other chartered institutions in the South, and a large number of other schools, which are doing important work in the education of coloured people.

5. "NEW ORLEANS make a display of photographs of its school buildings, its school records and school work, and all of which indicate that the city provides handsomely for the education of its children.

6. "THE KINDERGARTEN display for the purpose of practically showing Kindergarten methods of instruction, is exhibited. The school-room is simply but prettily fitted up, and has been the centre of attraction for large numbers of visitors. Miss Burritt, who is in charge, seems to have thoroughly mastered the system, and the readiness and dexterity with which her little pupils acquitted themselves have won the admiration of all who have seen them.

"In another building Miss Coe exhibits what is called in the catalogue "The American Kindergarten System." She differs from nearly all other Kindergartners and teachers by the object method in the arrangement of her lessons, beginning with the sphere and spheroids, from which she derives the other solids, and passing from them to surfaces and then to lines."

STATISTICS OF EDUCATION IN MARYLAND, KENTUCKY, MISSOURI AND TENNESSEE.

STATES.	Date.	No. of Pupils.	No. enrolled in School during year.	No. of Teachers.	Income.	Value of School Sites.
Maryland	1874-75	437,100	228,000	5,968	\$1,438,416	\$1,021,000
Kentucky	1874-75	276,100	142,992	2,723	1,376,046	—
Missouri	1874-75	738,431	394,780	9,651	3,013,595	6,771,163
Tennessee	1874-75	426,612	199,058	4,210	740,316	—

PART XIII.—EDUCATION IN COUNTRIES WHICH HAD NO SCHOOL EXHIBIT AT THE CENTENNIAL EXHIBITION.

It was somewhat remarkable that some of the foremost nations in Europe had no educational exhibit at Philadelphia, although they generally made a good representation in that department at Vienna, in 1873. These nations were at the Centennial well represented in all of those material things which indicate ingenuity, skill and industry. They there also vindicated their claims to pre-eminence in the higher departments of art and science; but, in the special subject of social science (including education), they presented to the new world no evidence that they attached special importance to the subject itself; or that they had either made any marked progress in this great national interest, or had any information to give to educationists on this continent on the subject. This was felt to be an error. To many it indicated a want of that rare foresight and sagacity on the part of upholders of monarchical institutions which generally characterize European states.

men and public men. The omission surprised, and at the same time, greatly disappointed educationists on this side of the Atlantic. It was accounted for in various ways, viz.: (1), The omission was regarded by some as a tacit admission that the European systems of popular education were inferior in practical utility and result to those of the American States; (2) it was by others regarded as a implied admission that the development of the educational systems in monarchical Europe was not sufficiently marked to warrant a comparison with those of Republican America; and (3) it was felt by many as an official intimation that education, as a national interest, was still considered of less importance than that of trade and industry. Whatever may have been the cause, the fact itself from the American stand-point, was felt to be significant. It was, therefore, much commented on by the general public, especially by that portion of it which took an interest in education *per se*.

THE EXHIBIT OF THE EMPIRE OF GERMANY.

1. THE EMPIRE OF GERMANY.—There was an omission on the part of one country which was felt to be unaccountable on any of these grounds cited—and that was the absence of any educational exhibit from the Empire of Germany. This country—Prussia proper, especially—had long been known to occupy a foremost place among the nations of Europe in the matter of education. It was one too, which it was believed had reduced popular education in its various departments to a practical science. It was known that in her system of public instruction, Prussia had on the one hand clearly defined the duty of the state to be to provide abundant facilities for education of every description; and on the other, she had as clearly imposed it as an obligation on the parent or guardian, to avail himself of them for his children to the fullest extent. A carefully prepared and philosophically arranged school exhibit—as might have been expected from such a country—showing the processes, as well as the extent of the courses of instruction in the different grades of schools, would have been an object of great interest, and of careful and thoughtful study, on the part of educationists in the new world. Why the omission was made, therefore, on the part of so sagacious a people as the Germans, was at first sight unaccountable—especially, at such a celebration as that of the birth-day of a kindred people. It was a grand opportunity of meeting that people as a worthy competitor on their own favorite subject, and of exchanging practical educational views, as well as of comparing modes and systems of instruction with their well informed transatlantic friends on this subject. On asking the able Commissioner from Germany the cause of so unexpected a disappointment, he expressed great regret for it. He said that in order to have a full and satisfactory exhibit of German Education, it would have been necessary to have got five ministries, or departments of government, to unite in the matter. Each ministry would then have had to contribute its quota of material, in order to secure anything like completeness in the collective exhibit. Even then, care would have had to have been taken to prevent repetition and incompleteness in any one department. Besides, the time was too short to have accomplished all of this in a manner creditable to the German Government, and worthy of the national occasion of the gathering. They, therefore, confined themselves to those subjects and branches of industry, etc., which were more easily and satisfactorily managed. Even in regard to these, the official catalogue of the German Exhibit, says:—

"Besides other causes, the present stagnation in business, the rapid succession of the world's and the simultaneous occurrence of other exhibitions, especially at London, Brussels and Munich, may be mentioned as having unfavorably influenced Germany's participation in the Philadelphia Exhibition."

GERMAN BOOK AND MAP EXHIBIT.—While Germany as an empire sent no national school exhibit to the Centennial, yet private parties endeavoured to some extent to supply the deficiency. The character of that private exhibit is so well illustrated by the Hon. Mr. Wickersham, that I give his description of it in preference to my own. He says:

"Famed as Germany is for her schools and systems of schools, she has little at the Centennial Exhibition to justify her claim. Strictly speaking, she has no educational exhibit. Models and pictures of school-houses, specimens of school furniture and distinctive school apparatus, representations of her school systems and the work of the pupils in her schools are, so far as we can find out, wholly wanting. To learn what this great European nation can do in an educational way, we are compelled to be satisfied with the exhibits of some of the great publishing houses of Berlin, Leipsic, Stuttgart, etc. These display pamphlets, books, atlases, maps, globes, designs, charts, etc., etc., in great variety. Their bookmaking is certainly equal to anything we can do in this country, and their atlases, maps, globes, charts, etc., are in most respects greatly superior to ours. The shading and colouring of the maps and charts, and their relief maps and globes, are finer than anything of the kind we have ever seen. If any one should question our judgment in the matter, let him visit and study the German exhibit.

"In saying above that the educational systems and institutions of Germany are unrepresented, we should have excepted the Polytechnic Institute of Darmstadt. This school has a fine exhibit, consisting of the usual products of such institutions. . . . It is enough to say now that Europe is greatly in advance of America in the matter of technical and industrial education, and we should hasten to profit by her experience."

The German official catalogue gives some interesting and valuable information in regard to the book Exhibit which I condense as follows:—

"The development of the German book trade was immediately from its origin favoured by the invention of book-printing on German ground, in 1440. German printing missionaries transplanted the new art to France, Italy, Spain, Sweden and Poland; and Caxton, the founder of printing in England, had learned the art in Germany. In this country the trade in scriptures was, even in the time of the manuscript traffic, free and unimpeded, not regulated and confined to certain limits by statutes of the universities, as in other countries. Favoured by these circumstances the book-trade developed on such a large scale, and became of such vital importance for the mental culture of Europe, that the fairs at Frankford-on-the-Main, even at the close of the first quarter of the 16th century, presented the picture of a literary world market, visited not only by Germans, but also by Italians, Frenchmen, and Dutchmen. Beside the Frankfort fairs, those held at Leipsic, rose to importance, and were devoted in preference to the furthering of German interests. In the following period of mental and material retrogression, the old organization of the book publishing and selling trade maintained, and held together Germany, mentally, which was then politically so greatly divided. The classical period of German poetry and philosophy gave a new and powerful impetus to the book trade. Then, after the wars of Napoleon, mental life in Germany assumed a specifically literary character, thus raising the book-trade to its present standing.

"Besides this capacity of diffusing itself over all countries, the German book-trade has the peculiarity of not being locally centralized in its publishing activity. Leipsic, Berlin, and Stuttgart are certainly the chief seats of publication, yet their joint contribution of the total publications, stands but in the proportion of 4 to 5, to that of the other parts of the German Empire. In regard to the number of its annual publications, Germany is far superior to any other country, which, leaving alone the importance of the literature, is only to be explained by the excellent organization of the book-trade. At present, there are published in the domain of German tongue 12,000 volumes of new works, continuations, and new editions, a year. Of this number, 10,000 at least are published in the German

Empire. The statistics of France and England do not present much more than 5,000 publications. Allowing for the different methods of circulation, it may be assumed with certainty, that the German Empire produces half as many books as France and England. Its superiority lies chiefly in the scientific literature, and in that of a popularly instructive character. As regards entertaining literature, Germany is, as far as numbers go, not in advance of England. The sale of the German book-trade may, at present, be estimated at 15 to 17½ millions of dollars, exclusive of the newspapers, periodicals sent by mail, canvassed and local literature, which stand beyond the limits of control."

THE EDUCATIONAL SYSTEM OF PRUSSIA.

SCHOOL SYSTEM OF PRUSSIA.—With a view to furnish a condensed view of the school system of Prussia, I quote the following brief sketch of it from an address on the subject recently delivered by Professor Gwathmey before the Virginia Educational Association. He says :—

"As early as 1540, before the kingdom of Prussia existed—save as the Mark of Brandenburg,—visitors were appointed to inspect the town-schools of the Electorate, and report measures for their improvement.

"A decree by the Elector, John George, in 1573, provided for the appointment of committees of superintendence, corresponding to the present school committees. In 1717, a decree of Frederick William the First enjoined upon parents to send their children to school, and provided for the payment of teachers, and for the education of the poor.

"The first regular seminary for teachers in Prussia was established at Stettin in 1735. A royal decree of the following year declared that the parent of every child between the ages of five and twelve, should pay a certain fee, whether the child attended school or not.

"During the reign of Frederick the Great, public instruction received a new impulse that decided its future importance. The regulations drawn up by Hecker and approved by the king in 1763, though in part superseded by later decrees, are in many of their provisions still in force.

"The most trying, but perhaps the most important, era in the history of public instruction in Prussia, was during the Napoleonic invasion and occupation.

"Although the country was reduced to the greatest extremity, so strong was the conviction of the crown that to educate the masses, and thus infuse into them a German spirit, was the only hope of deliverance, that the ablest men were put in charge of the Department of Instruction, and several most important regulations as to appointing teachers and reforming the higher schools, were adopted and enforced with unwonted vigour.

"The cardinal provisions of the school system of Prussia are: 1st, That all children between the ages of seven and fourteen shall go regularly to school; 2nd, Each parish shall, in general, have an elementary school; 3d, Teachers educated in seminaries adapted to the grade of instruction to which they intend devoting themselves are, other things being equal, to be preferred; 4th, The authorities which regulate the schools, and, in fact, the teachers, are to be regarded as officers of the government.

"The system embraces three grades of instruction, provided for in three classes of institutions. 1. Primary or elementary instruction, conveyed in schools corresponding to our common schools. 2. Secondary instruction, provided for in gymnasiums, progymnasiums, real-schools and upper burgher schools. 3. Superior instruction, imparted in the universities.

"1. The primary schools of Prussia are of two kinds: the elementary, and the burgher or middle schools.

"The first is not an introduction to the second, as might be supposed by its name, but proposes to instruct in those common branches of knowledge, alike indispensable to the inhabitants of the country and towns. These schools educate the poor, and are frequently designated as poor, or charity-schools.

"The burgher schools carry on the child until he is capable of manifesting his indica-

ons for a classical education, or for a trade. Their pupils generally become artisans or hopkeepers. They afford an elevated standard of true primary instruction.

As a rule, the elementary schools have two classes for each sex (the boys and girls being taught separately), the lower containing pupils from six to nine or ten years of age, and the upper pupils from nine to thirteen years of age. This division requires the union in one class of pupils in very different stages of progress. The lower class has twenty-six, and the upper thirty-two to thirty-four hours of instruction per week, the former having one hour less per day than the latter.

"The superiority of the burgher to the elementary schools is due not only to the greater variety of subjects taught in them, and to the greater extent of their courses, but to various minor advantages. Among the first of these may be stated an increase in the number of classes to four, or sometimes six, admitting of a nearer equality of knowledge on the part of the pupils composing each. Next, the smaller number of pupils under the charge of one teacher; the average number to the teacher being about one-half that in the elementary schools. Again, the higher salaries paid gives them the choice of the teachers. Further, the grade of intelligence of their pupils is above that in the elementary schools.

"The subjects of instruction in the primary schools vary in the different classes. In those for the younger children who have only just entered school, they are confined to Scripture history, reading, writing, arithmetic and singing; but in the classes for the older children, higher and more advanced exercises in the above subjects are given, and the scholars learn also German history, geography, drawing and mental arithmetic.

"The burgher schools afford an opportunity for the further study of all the subjects enumerated above, and moreover give instruction in geometry, universal history, and French.

"2. At the head of the secondary schools of Prussia, and directly leading to the university, are the gymnasiums. Prior to 1812, they were variously called gymnasiums, lyceums, pedagogiums, colleges, Latin-schools, &c.

"A gymnasium has properly six classes, counted from the sixth, the lowest, to the first (*prima*), the highest. The course in each of the three lower classes is of one year, in each of the three higher of two years, making nine in all: it being calculated that a boy should enter the gymnasium when he is nine or ten years old, and leave it for the university when he is eighteen or nineteen.

"Formerly, the *Fachsystem*, or system by which the pupil was in different classes for the different branches of his instruction, was prevalent. Since 1820, this system has been gradually superseded by the *Classensystem*, which keeps the pupil in the same class for all his work.

"A plan of work is prescribed by ministerial authority. It merely fixes the subjects of study and the number of hours to be allotted to each in each class. Great freedom in the minor details is left to the teacher, and great variety is to be found in practice.

"Some years ago, the hours of work were thirty-two in the week. This was found to be too much, and since 1856, in the lowest class, there are twenty-eight hours per week of regular school work, and in the five higher thirty hours. The school hours are: in the morning, from 7 to about 11 in summer, from eight to 12 in winter; in the afternoon, they are from 2 to 4 all the year round. There is but one half-holiday, and that is in the middle of the week.

"Latin has ten hours a week given to it in all five classes below *prima*, and eight in *prima*. Greek begins in *quarta*, and thenceforward has six hours a week in each class. The mother tongue has two hours a week in all classes below *prima*. Mathematics has four hours in *secunda* and *prima*, and four in *serta*, but only three in *quinta quarta* and *tertia*. French begins in *quinta*, and is the only foreign modern language required as part of the regular school work. It has three hours in *quinta*, and two in all the classes above. English and Italian may be studied in many of the gymnasiums, if desired. Geography and history have two hours a week in *serta* and *quinta*, and thenceforward three hours. The natural sciences get two hours in *prima* and one in *secunda*; in the other classes they are the most movable part of the work. Drawing is taught in the three lower classes of the school, and has two hours a week. Religious instruction is given in every class, in *serta* and *quinta* for three hours a week, in the four higher classes for two hours. All the

boys learn singing and gymnastics, and all who are destined for theology learn Hebrew in *secunda* and *prima*. But these three matters do not come in the regular school hours.

"While it is deemed highly important that the pupil should have preparation to make, requiring the exercise of his own resources, it is not less so, that the amount of private study should not be carried to an injurious excess. The regulations provide, therefore, that at the beginning of each term, there shall be a conference of the teachers, to determine the due amount of such work in the different classes in detail.

"Every teacher must keep a book, subject to the inspection of the director, in which the exercises given are to be accurately noted. The exercises written by the pupils must be corrected by the teacher, and a review of the exercise books must be gone through with, at least once a month. Themes on subjects with which the pupils are not acquainted, so that they must labor both for the matter and language, are forbidden. The teacher should not only select subjects for these exercises known to the students, but should also explain the manner in which he expects them to be treated.

"Those who intend to embrace one of the professions requiring a university course of three or four years, must, before matriculating at the university, pass at a regular gymnasium, what is known as the '*Arbiturculen-prüfung*,' or Leaving-examination.

"To be admitted to the examination, a pupil of a gymnasium must have been in its first class at least three terms of half a year each, except in cases where pupils have especially distinguished themselves in this class during a year. Persons who have been educated in private undergo this same examination in any gymnasium their parents may select.

"The examining body is composed of the director of the gymnasium and the professors who teach in *prima*, of a member of the ecclesiastical authority of the place, and a royal commissary, where there is one, and of a member of the provincial school board. The last named is always president of the examining committee. The examinations are both written and oral. The subjects of the written examination must be such as have never been treated specially in the class-room, but not beyond the sphere of instruction of the pupils. The only helps allowed are lexicons and mathematical tables. The written exercises embrace: 1st, A German prose composition; 2nd, A Latin extempore (in which the master speaks in the native tongue to the student who must render the German into Latin in writing); and a Latin composition on some subject which has been treated in the course, the special reference in this exercise being to the correctness of the style; 3d, A translation from a Greek author which has not been read in the course, and from Latin into Greek; 4th, A translation from German into French; 5th, The solution of two questions in geometry, and of two in analysis, taken from the courses in those subjects. The time allowed for these several written exercises is as follows: for the German, five hours; Latin composition, five hours; Greek translation, three hours; translation from Latin into Greek, two hours; French composition, four hours; mathematical exercises, five hours. Four days—not consecutive—are allowed for examination in these subjects. The candidate who fails on the written examination is not permitted to proceed further. The *circa voce* examination is generally conducted by the masters who have given instruction in *prima* on the subjects of examination. Additional questions are asked on the subjects of the written examination, and the knowledge of the pupil is tested in history, physical, mathematical and political geography, elementary physics and the elements of moral philosophy, physiology and logic.

"Those students who are deemed by the committee to have passed a satisfactory examination receive a "Certificate of Maturity." The others are remanded to their classes, and may present themselves after an interval of six months for another examination, unless they are deemed entirely incompetent to continue a literary career. Proficiency in *all* the subjects of examination is usually required to entitle a candidate to a certificate, but exception is sometimes made in favour of those who show great attainments in the languages or mathematics; and in the case of those students of a somewhat advanced age, the direct bearing of the different subjects upon the profession they intend to embrace is considered.

"The certificate of maturity is necessary to enable a youth to be matriculated in either of the faculties of theology, law, medicine or philology in one of the national universities, to be admitted to examination for an academic degree, to be appointed to office in state or church, or to obtain one of the royal bursaries at the universities.

Students who have not passed a satisfactory examination, and whose parents demand it, are entitled to a certificate stating the branches in which they are deficient. They may enter the university with this, and are registered accordingly. But they hold an exceptional position. They can only enter the faculty of philosophy, and even there they are enrolled in a special register. They can attend lectures, but the time does not count for a degree. They may be examined once more, and but once, going to a gymnasium for that purpose. The three or four years required in the faculty, which they follow, only begins to count from the time when they pass.

"Pro-gymnasiums are gymnasiums without their higher classes. Most of them have the four lowest classes of a gymnasium; some have only three, and yet others have as many as five. The tendency is to develop the pro-gymnasium into the full gymnasium, and their courses and hours of instruction are identical as far as the pro-gymnasium goes.

"The first school that bore the name *Realschule* was established at Halle, by Christopher Semler, in 1738. This institution soon perished, but was followed by others of the same kind in different parts of the country. But their success seemed doubtful for a long period. One of these schools was founded at Berlin, in 1747, by Johann Hecker. It led a precarious existence until 1822, when, under the management of Spillecke, it was developed into a complete real-school. This is said to have been the first good specimen that ever existed.

"The Prussian government began to occupy itself with the real-schools in 1832. Their increasing popularity made it necessary, in the opinion of the ministry, that a definite plan and course should be framed for them as for the gymnasiums.

"The studies of the real-school proper and of the gymnasium have exactly the same elementary basis, and they remain so far parallel to each other, that a pupil, by taking extra instruction in Greek, may pass from the lower third class of the former to the lower third of the latter. Real-schools are distinguished as of three kinds: first rank, and second rank, and higher burgher schools. The real-school of the first rank has the same number of classes as a gymnasium, and the course is likewise for nine years. The plan of study prescribes for them a rather greater number of hours of school work per week than the gymnasiums have: thirty for the lowest class, thirty-one for the class next above, and thirty-two for each of the four others.

"All three kinds of real-schools are for boys destined to become mechanics and tradesmen. The modern languages and the sciences are, therefore, brought more prominently forward. The study of English is made obligatory, as well as French, though the latter has the most time allotted to it.

"Religious instruction has the same number of hours as in the gymnasium. Drawing has two hours a week in each class below *prima*, and three in *prima*.

"The real-schools of the second rank have the six classes of those of the first, but are distinguished from them by not having Latin made obligatory, by being free to reduce their course from nine to seven years, and, in general, by being allowed considerable latitude in varying their arrangements to meet local wants.

"The name of higher burgher school is assigned to the third class of real-schools, which has not the complete system of six forms that the other two kinds have. The higher burgher school stands, therefore, to the real-school in the same relation that the pro-gymnasium stands to the gymnasium. Some of these schools have as many as five classes, and in all of the best of them Latin is taught to a limited extent.

"That a sufficient number of trained teachers may be provided for the primary schools, it is required by law that a normal school shall be established in every department. The course of instruction in these schools extends through three years. The first and second years are taken up in a thorough review and further prosecution of the study of the subjects taught at a higher primary school, and the greater portion of the third year is devoted to practice in teaching under the eye of an experienced teacher.

"At stated periods, examinations are held at these institutions and diplomas conferred, and no person is allowed to engage in primary instruction, either in a public or private school, until he has taken one of these. The diplomas are marked one, two, or three, according to the merits of the student. Only those marked one will secure a permanent appointment to the office of teacher. If the diploma be marked two or three, the bearer may receive an appointment on trial for one or two years, but at the end of

that time he must submit to another examination, and continue to be re-examined, from time to time, until he receive a diploma marked one, or until he be finally dismissed as incompetent. Even after he is once settled, should he fail to continue to improve himself, or should he seem to have rusted in what he had learned before, he may, at any time, be remanded to the normal school to review.

"To be appointed to the office of teacher in a secondary school in Prussia, it is necessary that the applicant submit to a rigorous examination in those subjects embraced in the courses of the gymnasium or real-school; and having passed this examination, he is to prove his fitness for the office by a year of actual trial in a regular gymnasium or real-school of the first rank. The trial year may be dispensed with, only in the case of those students who have passed satisfactorily through the course of one of the pedagogical or philological seminaries, attached to most Prussian universities, where ample opportunity of testing the ability of the student in practical teaching is afforded.

"The examination is both oral and written. Those who have made their doctorate, and published the Latin dissertation required for that degree, are excused from the written part. A main condition for admission to an examination is the complete triennium of a university—at least three semesters having been spent in a Prussian university. A foreigner, to be admitted to the examinations; must have a special permit from the Department of Education."

The following gives the number of students and teachers in the German and other Continental Universities, taken from the University Calendar for 1876-7:—Berlin, 3,666 students and 193 teachers; Vienna, 3,581 and 247 teachers; Leipzig, 2,803 and 155; Munich, 1,158 and 114; Breslau, 1,122 and 108; Göttingen, 1,059 and 119; Tübingen, 1,025 and 86; Würzburg, 990 and 66; Halle, 902 and 96; Dorpat, 844 and 65; Graz, 804 and 88; Heidelberg, 795 and 110; Bonn, 785 and 100; Strasburg, 700 and 94; Königsberg, 611 and 82; Innsbruck, 570 and 67; Greifswald, 507 and 60; Jena, 503 and 77; Marburg, 445 and 69; Erlangen, 422 and 55; Münster, 415 and 29; Zurich, 355 and 75; Bern, 351 and 74; Giessen, 343 and 59; Freiburg, 290 and 54; Basel, 239 and 64; Kiel, 223 and 65; and Rostock, 141 and 36.

STATE OF EDUCATION IN FRANCE.

2. REPUBLIC OF FRANCE.—This country, which had so excellent a representation in educational matters at Paris in 1867, and at Vienna, in 1873, had no school exhibit at Philadelphia in 1876. Her national exhibits in the departments of civil and military engineering were, however, most interesting and valuable in an educational point of view. I have already referred to this government display (on pages 101—103 of this Report), and also briefly to the educational prospects of France in the matter of primary schools. I now give the following information in regard to the condition of secondary education, which has recently been published in the *Michigan University Chronicle*:—

"Nearly every city in France, with more than 10,000 inhabitants, has a 'College' or 'Lycée.' These institutions of learning are on the plan of boarding-schools. All the 'Lycées' are government schools; the colleges belong to the cities where they are established. About one fifth of the scholars in the above institutions are received free of any expense—(board, lodging, clothing, books, etc.) The remainder pay from \$100 to \$200 per annum, and no extra charges. Scholars are received in the 'Lycées' or 'Colleges' at 7 years of age, and usually remain there until they are 19 or 20. No degree is conferred on leaving these institutions; but the scholars are prepared to pass their final examination for the degrees of 'Bachelier-es-lettres' (B.A.), or 'Bachelier-es-sciences' (B.S.). Of one hundred students who have finished their course in the above institutions, sixty usually pass their examination successfully the first time they try, ten the second time, (three months latter), five one year latter; leaving twenty-five, who seldom ever get their degrees. In the Lycées and Colleges an examination is held every year, and no scholar is allowed to

pass on to the next year's course who has failed in one of the studies of the preceding year. The studies pursued are about the same as in our universities, perhaps somewhat more of the classics, but less of the sciences. The scholars are not considered students unless they take up on leaving the *Lycée* what we might call post-graduate studies, in one of the universities or special government institutions of the country. There are but three universities in France which combine the four faculties—Law, Medicine, Letters, and Science. These are located at Paris, Lyons, and Nancy (formerly Strasburg). There are seventeen other universities throughout the country with two faculties only, Letters, and Science; eleven with a law faculty only; five with a medical faculty only. All of the above universities are government institutions. The degrees conferred are: 1st, 'Licencié-es-lettres' or 'es sciences'; 'en Droit,' or en Medicine; 3rd, 'Agrégé' in one special branch. To become 'Licencié' a course of five years is usually needed. To become 'Docteur' usually from four to six years; to become 'Agrégé' usually from seven to ten years. No one can take one of the above degrees who is not both B.A. and B.S. There are, since 1873, about fifteen other private universities in France, with one or more faculties. To the above can be added no less than 200 Catholic institutions, preparing for the first degree (B.A. and B.S.), and for the priesthood. The government possesses also twelve special schools of Letters, Arts, and Science. The admission to these institutions requires at least two to three years study after leaving the *Lycée*. They are also on the plan of boarding-schools. The average age of admission is 21. The courses extend over three, four, and five years. Special courses are pursued in these institutions, fitting the student for teaching, the army, navy, engineering, architecture, etc., etc. In the universities, properly called, the students are free, and pass their examinations when they see fit. These examinations are four in number—three during the course pursued, and one final examination, covering the whole ground. A graduate of any of the government schools is called a graduate of the University of France."

STATE OF EDUCATION IN AUSTRIA—HUNGARY.

3. EMPIRE OF AUSTRIA—Small as was the Prussian Contribution to the Educational Exhibit of Germany, Austria had less. Hers consisted only of a display of some scientific and technical works in connection with that of the Austrian Society of Civil Engineers and Architects. As to her educational system, I quote the following remarks made by Dr. Bittes, in a speech which he delivered in the Reichsrath, in December last; his position as a member of the Austrian Parliament, President of the Pedagogium of Vienna, and author of several distinguished works upon Pedagogy, gives much importance to his statements:—

"The whole sum denoted by the government to educational purposes exceeds 17,000,000 florins, but not a quarter of a million is employed for the people's schools in the country, where, however, nine-tenths of the population must derive their instruction. The schools of Vienna, and those of Upper and Lower Austria and Styria are in a satisfactory condition; but the same cannot be said, unfortunately, of other parts of the empire. Thus, in Bukowina, there are in all 167 country schools, while the law requires more than 400 additional ones. And even these leave much to be desired; they are but little and very irregularly attended, the number of scholars not reaching 20 per cent. of the number of an age to go to school, thus leaving 80 per cent. without instruction. But in what sort of places are the schools held in Bukowina? In many parts, in the most miserable huts that can be found; in many others there is no special place assigned, and they make use of the dead chamber in the cemeteries. In many parts, the rooms are unhealthy, and lack everything requisite for a school-room: the door does not shut, the glass is broken and replaced by sheets of paper, there is not a trace of school material, no blackboard, not even desks for the scholars, or a chair for the teacher, and yet they call it a school-house!

"In Galicia, except in the large towns, all is pretty much in the same condition: there are not 20 per cent. of children, of suitable age, who attend the schools. In the Tyrol, Carinthia, Carniola, Istria, and Dalmatia, things are better, but still far from satisfactory; in Bohemia, Moravia, and Austrian Silesia, the schools are better still, but there is yet a great evil arising from the difficulty of finding suitable teachers, and in consequence they are obliged often to employ men who are not at all fitted for the post. This evil is by no means confined to one locality, since at least 5,000 more teachers are needed in Austria. They are making great sacrifices to remedy the evil by establishing normal schools, and the pupils there are numerous; but unfortunately all these normal scholars do not become teachers, and thus the evil is slow in being remedied. 'And how can we expect young men to become teachers,' exclaimed Dr. Bittes, 'as long as a teacher is worse paid than the lowest day laborers?' some of them not receiving more than a hundred florins a year, and suffering under the despotic sway of school commissioners composed of peasants, liquor dealers, Jews, servants of the nobility, many of whom can neither read nor write, and have neither the desire nor the power to improve matters; they enter the school-room, often drunk, with a pipe in the mouth, and their hats on, and give absurd orders, which the poor teacher must obey or run the risk of losing his place."—*New England Journal of Education*.

4. STATE OF EDUCATION IN HUNGARY.—From the same *Journal*, I extract the following resumé of the education report for the years 1873-75, published last December, by the Hungarian Minister of Public Instruction:—

"In the Primary Department, the number of children between the age of six and twelve was 2,139,207; of them were not registered 643,063 children; the average school attendance was 70 per cent.; and in respect of former years, the increase is 2 per cent. The number of the elementary school buildings was 15,390. Proper school-houses were 13,792; while 1,597 were hired buildings. The number of school gardens increased much, being, together, 10,018, and 4,500 more than in the former year. School libraries are only in 1801 places, which shows an increase of 373, comparing it with the year 1873. The annual income of the elementary school was 7,488,243 florins. (State, county, and city tax; about eight millions of florins; from other sources, 948,382 florins). Normal schools were in 1874, altogether, 58 (between these, 10 female normal schools). The number of professional schools about 20; besides them were the commercial schools, the mechanical industry schools, and a commercial academy at Buda-Pesth. Kindergartens were, altogether, 198, and two normal schools for training kindergarten teachers. This number is less than should be expected. The number of gymnasiums was 146, with 1768 teachers, and 27,144 pupils, (between them more than 20,000 Hungarians). Real schools were 35, with 431 teachers, and 8086 pupils (between them, 7,526 Hungarians). Preparandies for gymnasial teachers were 2, one in Buda-Pesth, the other in Kolozsvár. School furnitures, 32,834 fl.; bursaries, 71,641 fl. and 175 ducats (one ducat costs 5½ fl.) for salaries of elementary readers: 6,256,244 fl., being the average sum per capita, 319 fl.; (In Austria, same per capita in 1875, 467 fl.). The report shows in every respect, a fair progress of public instruction in Hungary."

CONDITION OF EDUCATION IN THE KINGDOM OF ITALY.

5. STATE OF EDUCATION IN ITALY.—With the exception of a number of books and publications on medical, musical, and other subjects, Italy had no educational or literary display at Philadelphia. In art and in some other departments, she, of course, excelled; but, that has no reference to the subject in hand. The following extract from a recent number of *Il Museo d'Istruzione*, will give some idea of what is now doing in Italy for public instruction. This periodical furnishes the following statement of sums expended for education:

"Superior Council of Public Instruction	\$1,214,800
"Expenses of Universities and Institutes connected therewith, Libraries, Fine Arts, Academies, Museums, &c.....	10,669,823
"Secondary and Technical Instruction, Salaries, Apparatus, &c.....	5,778,363
"Normal School.....	1,307,089
"Deaf and Dumb Schools.....	198,570
"Primary Instruction	1,797,500
"Divers expenses for encouraging scholars, repairs, maintenance, &c.	2,049,922
"Total.....	23,016,068

"In all, more than twenty-three millions of lire Italiane, or nearly four millions and a half of dollars, besides those expenses of elementary and secondary instruction which belong in part to the different communes throughout the country, and the expenses of certain technical, professional, and nautical institutes, that are defrayed by other departments :

"In the 80 Royal Lyceums there are inscribed in three divisions as scholars.....	5,532
"In the 104 gymnasia, five divisions.....	9,772
"In the Technical Schools, four divisions	6,501
"In 26 National Boarding-Schools.....	2,336
"Total.....	24,141

"This enumeration does not include the city of Naples, or the city or province of Bologna, which appear to be under a separate regimen. In the last province, it is stated that only 53 per cent. of boys, and 44 per cent. of girls, of age to attend school, are inscribed on the records.

"The new Minister of Education of Public Instruction, Michael Coppino, was born in 1822, at the little town of Alba, the Alba Pompeia of antiquity. He is the son of a cobbler, and has raised himself to his present position entirely by his own industry and talent. He received his education at the Carlo Emanuele College of Turin, and became afterwards professor of rhetoric at several Italian universities, and finally at the University of Turin. He held the position of Minister of Public Instruction, as a member of the Ratazzi Cabinet in 1867, and is a very fluent and polished speaker. *L'Annotatore* states that he is giving proof of his desire to better the condition of teachers, and to excite a more lively and fruitful ardor in study : he is full of good will toward the class of instructors, and will certainly improve their position and render their lot less trying."

STATE OF EDUCATION IN THE KINGDOM OF BAVARIA.

I give the following information in regard to the state of Education in Bavaria, from General Eaton's last report :—

6. BAVARIA, constitutional monarchy: *Area*, 29,347 square miles; *population*, 4,863,450, *Capital*, Munich; *population*, 169,478. Minister of Public Instruction, Dr. von Lutz. Date of report, 1875.

"PRIMARY INSTRUCTION *Deutsche Schulen*:—Number of schools, 7,016; number of teachers, 10,599; number of pupils, 841,304; in the number are included pupils of Sunday and Evening schools.

"*Common industrial schools for girls*: Number of schools 1,671; number of teachers, 1,837; number of pupils, 71,635.

"*Normal schools*: Preparatory schools for higher normal courses: Number of schools, 35; number of students, 1,276.

"*Teachers' seminaries*, (higher course): Number of seminaries, 11; number of students, 786; number of professors, 94.

"There are, besides, a seminary for Jewish candidates, 3 seminaries for the training of female teachers, and 1 seminary for the training of teachers of gymnastics.

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"*Kindergärten and infant schools*: Number, 249; of which 27 are *Kindergärten*: Number of pupils, 24,215.

"*Secondary Education: Latin schools*: Number of schools, 75; number of teachers, 748; of which 553 are exclusively employed in Latin schools; number of pupils, 6,738.

"*Gymnasias*: Number, 28; number of pupils, 2,640; number of professors, 438; of which 396 are exclusively employed in the *Gymnasias*.

"*Real gymnasias*: Number, 6; number of pupils, 362; number of professors, 66.

"*Superior Education*.—University of Munich: Number of professors in 1876, 116; number of students, winter semester, 1875-76, 1,232.

"*University of Würzburg*: Number of professors in 1876, 67; number of students, winter semester, 1875-76, 1,019.

"*University of Erlangen*: Number of professors, 54; number of students, winter semester, 1875-76, 429; total number of universities, 3; total number of professors, 237; total number of students, 2,680.

"*SPECIAL INSTRUCTION*.—Polytechnic school at Munich: Number of professors, 49; number of students, 922.

"*Clerical seminaries*: Number, 9; number of students, 449.

"*Royal lyceums*: Number, 8; number of professors, 67; number of students, 349.

"*Technological schools*: Number, 36; number of students, 3,745; number of professors, 426.

"*Higher industrial schools*: Number, 3; number of students, 189; number of professors, 46.

"*Central veterinary school at Munich*: Number of professors, 11; number of students, 52.

"*Higher commercial schools*: Number, 2; number of professors, 43; number of students, 553.

"*Schools of architecture*: Number, 3; number of professors, 23; number of students, 130.

"*Professional evening and Sunday Schools*: Number, 260; number of teachers, 827; number of students, 14,501.

"*Schools of agriculture*: Number, 4; number of professors, 76; number of students, 315.

"*Special agricultural courses*: Number, 947; number of 'hearers,' 18,260.

"*Central school of forestry at Aschaffenburg*: Number of professors, 6; number of students, 135.

"*Military academies and schools*: Number, 4; number of instructors, 38; number of students, 246.

"*Schools of art*: Number, 2; number of professors, 40; number of students, 475.

"*Miscellaneous schools for special education*: Number, 102; number of pupils, 7,079.

"*MUSICAL INSTITUTIONS*.—*Royal music school at Munich*: Number of professors, 23; number of pupils, 146.

"*Royal musical institute at Würzburg*: Number of pupils, 184; number of professors, 12; number of musicians and singers, 180.

"*CHARITABLE INSTITUTIONS*.—*Asylums for destitute children*: Number, 78; number of attendants, 268; number of inmates, 2,485.

"*Orphans and foundlings' homes*: Number, 53; number of attendants, 173; number of inmates, 1,962.

"*Deaf-mute asylums*: Number, 12; number of teachers, 33; number of pupils, 361; viz., 192 males, and 169 females.

"*Institutions for the blind*: Number, 3; number of pupils, 129.

"*Institutions for cripples at Munich*: Number of inmates, 33."

STATE OF EDUCATION IN THE KINGDOM OF WURTEMBERG.

7. WURTEMBERG, constitutional monarchy: *Area*, 7,675 square miles; *population*, 1,818,539. *Capital*, Stuttgart; *population*, 91,623. *Minister of Public Instruction*, Dr. von Gessler, Date of report, 1876 (sent in July).

"PRIMARY EDUCATION.—Number of schools not given. Number of teachers' places, 3,878, viz., 2,653 Protestant and 1,225 Catholic. Number of pupils not given.

"*Secondary Education*.—Public preparatory schools: Number of schools, 13, with 42 classes and 2,061 pupils, viz., 1,900 natives and 161 foreigners; number of teachers not given.

"*Public Realschule*: Number of public realschule, 81, with 234 classes; number of pupils, 7,482, viz., 5,732 Protestants, 1,184 Catholics, 355 Jews, and 11 of other denominations; number of teachers, 261.

"*Gymnasias and lycæums*: Number of Gymnasias and lycæums, 91, with 273 classes; number of pupils, 7,482, viz., 5,593 Protestants, 1,611 Catholics, 271 Jews, and 6 of other denominations; number of teachers, 316.

"SUPERIOR EDUCATION.—*University of Tübingen*: Number of students, 878, viz., 508 from Württemberg, and 370 from other countries; number of professors, 89; number of assistants, 7.

"*Academies of Agriculture, Forestry, &c.*: Academy of Agriculture and Forestry at Hohenheim: number of students: winter semester, 1874-5, 84; summer semester, 1875, 82; number of professors and assistants, 25.

"Veterinary School at Stuttgart: Number of regular students, 26; number of students who study anatomy only, 21; number of professors and assistants, 10.

"Agricultural schools at Ellwangen, Kirchberg, and Ochsenhausen: Number of pupils, 36; number of professors, 4.

"School for the training of vine cultivators: Number of pupils, 13; number of teachers, 2.

"Agricultural winter schools: number of schools, 5; number of pupils, 75; number of teachers not given.

"Agricultural evening schools and reading rooms for adults: Number of schools, 893; number of pupils, 20,996. These institutions have 620 libraries, with 84,438 volumes.

"Technical education.—Polytechnic School at Stuttgart: Number of professors and assistants, 73; number of students, winter semester, 1874-5, 537; viz., 422 in the technical, and 115 in the mathematical department; summer semester, 1875, 462 students; viz., 111 in the mathematical, and 351 in the technical department.

"School of Architecture at Stuttgart: Number of professors and assistants, 40; number of students, winter semester, 1874-5, 945; summer semester, 1875, 256.

"Sunday and evening schools for adults (*Fortbildungsschulen*): Number of schools, 153; number of pupils, 11,990; number of teachers, 644. Government contributes about \$30,000 for the support of these schools.

"School of Fine Arts at Stuttgart: Number of professors and assistants, 12; number of students of winter semester, 1874-5, 85; summer semester of 1875, 71.

"Conservatory of Music at Stuttgart: Number of pupils, 576, of whom 79 were from America; number of teachers, 39; number of lessons given each week, 706.

"*Charitable Institutions*.—Orphan Asylums: Number of Orphan Asylums, 3; viz., 2 Protestant and 1 Catholic; number of inmates, 621; number of outsiders, 285; number of directors and assistants, 26; annual expenses about \$61,480.

"Institutions for the Deaf and Dumb: Number of Deaf and Dumb Institutions, 6; number of pupils, 267.

"Institutions for the Blind: Number of institutions, 4; number of pupils, 96."

STATE OF EDUCATION IN THE KINGDOM OF SAXONY.

8. SAXONY, constitutional monarchy; *area*, 6,777 square miles; *population*, 2,556,244; *Capital*, Dresden; *population*, 180,000; Minister of Public Instruction, Dr. von Gerber; date of report, 1873.

"PRIMARY EDUCATION.—(Elementary, extended elementary, and higher elementary schools): Number of public schools, 2,143, with 8,357 classes; number of teachers, 5,060, of whom 233 are females; number of pupils, 429,679, viz., 212,732 boys, and 216,947 girls; number of private schools, 124; number of teachers, 711; number of pupils, 4,267, viz., 4,178 boys, and 4,089 girls.

"Sunday and evening schools: Number of schools, 182; number of pupils, 12,594; number of teachers, 626.

"Kindergärten.—Total number, 91; number of teachers and pupils not mentioned.

"Normal Schools.—Teachers' seminaries: Number of schools, 14, viz., 13 Protestant and 1 Catholic; number of teachers, 133; number of students, 1,595, of whom 62 are females.

"Secondary Instruction.—Realschule: Number of realschule 20; number of teachers, 266; number of pupils, 4,144.

"Gymnasia: Number of gymnasia, 12, with 110 classes; number of professors, 225; number of pupils, 2,927.

"SUPERIOR INSTRUCTION.—*The University of Leipzig*: Number of professors and tutors, winter semester, 1875-1876, 3,032, viz., 2,925 matriculated and 107 not matriculated.

"Miscellaneous Institutions.—Saxony has excellent academies of fine arts, polytechnic, industrial, commercial, mining, drawing, agricultural, and evening schools, of which the number of teachers and pupils is not mentioned in the report."

STATE OF EDUCATION IN THE KINGDOM OF GREECE.

9. GREECE, constitutional monarchy: *Area*, 19,941 square miles; *population*, 1,457,894. *Capital*, Athens; *population*, 44,510.

The following is an abstract of an article in the *Archivo di Pedagogia*, of Palermo:—

"PRIMARY EDUCATION in 1874.—Number of public free schools, 1,127; number of pupils, 74,561—viz., 63,156 boys and 11,405 girls; number of private schools for boys, 41; number of pupils, 3,558; number of private schools for girls, 26; number of pupils, 1,355.

"SECONDARY EDUCATION in 1874.—(Gymnasia and Hellenic schools.) Number of Hellenic schools, 136; number of teachers, 280; number of pupils, 7,646; number of gymnasia 18; number of professors, 120; number of pupils, 2,460.

"Lycees and boarding schools.—Number of lycees and boarding schools for boys, 18; number of pupils, 718; number of boarding schools for girls, 15; number of pupils, 122.

"The last named are private institutions, and subject to government inspection.

"SUPERIOR EDUCATION.—The university: number of students in 1874, 1,352; number of professors, 53, number of tutors, 24.

"Miscellaneous schools.—Naval schools, 5, military academy, 1; polytechnic school, 1; seminaries, 4; royal marine school, 1; total number, 12, number of professors, 85; number of students, 681.

"Grand total of institutions of learning, 1,394; number of pupils and students, 93,588.

"No mention is made of normal schools and educational journals."

THE STATE OF EDUCATION IN TURKEY IN EUROPE.

10. SERVIA, principality, nominally belonging to Turkey, but independent since 1856: *Area* 12,600 square miles; *population*, 1,338,505. *Capital*, Belgrade; *population*, 26,674.

"PRIMARY INSTRUCTION.—Number of schools, 507; number of teachers, 627; number of pupils, 22,756. There are besides, 15 free schools, of which the number of teachers and pupils is not mentioned.

"SECONDARY INSTRUCTION.—Gymnasia: number of gymnasia, 17; number of teachers, 59; number of pupils, 546."

"High School for girls: Number of teachers, 26; number of pupils 238.

"SUPERIOR INSTRUCTION.—University: number of professors, 17; number of students, 196.

"Theological Seminary: number of professors, 11; number of students, 279.

"Normal School.—Number of teachers, 11; number of pupils, 59. A library with 2,000 volumes is connected with the Normal School.

"Industrial Schools.—Number of industrial schools, 11 ; number of teachers ; 49 ; number of pupils, 546.

"Only 15 per cent of the conscripts examined before the war were able to read and write (*Allgemeine Deutsche Lehrerzeitung*, 1876, No. 39.)

11. ROUMANIA, constitutional monarchy (tributary to Turkey): *Area*, 45,642 square miles, *population*, 3,864,848. *Capital*, Bucharest ; *population*, 221,150.

"On the 1st of September, 1875, Roumania had 2,413 public schools, of which 2,138 were supported by the State. The number of teachers was 873, of which 527 were *regularly trained*."

STATE AND PROGRESS OF EDUCATION IN GREAT BRITAIN AND IRELAND.

12. GREAT BRITAIN AND IRELAND.—The last seven years has witnessed a wonderful change in the educational status of England. During these years she has made vigorous strides onward. In her elaborate and comprehensive elementary School Act, she has sought to place her system of public education on a firm and substantial foundation. In doing this, she has recognized two or three important principles, and incorporated them in the School Act. 1st. The inherent right of the child to a good elementary education. 2nd. The duty of the parent to give it, or to justify his refusal by sufficient reasons or a pecuniary forfeiture. 3rd. The obligation of the general ratepayer to support the primary schools. These principles, which have long prevailed on this continent, were not conceded without a vigorous struggle in England, but they at length triumphed. There are several other important principles embodied in the English School Acts, which are fully explained in the following summary sketch of the progress of popular education in England, from 1839 to 1876. This sketch has been prepared by H. J. Briggs, Esq., and I. W. Edwards, Esq., of the Middle Temple, Barristers-at-Law. I have thought it desirable to condense this sketch, and insert it in this report, as so many of our people are interested in the subject, but do not know exactly what is the present condition of the law relating to popular education in England.

I. SKETCH OF THE ADMINISTRATION OF THE GRANTS FOR PUBLIC ELEMENTARY EDUCATION IN ENGLAND AND WALES (1839-1876).

"Before the year 1839, the primary education of the poor was left entirely to private effort or to the voluntary association of individuals, unaided (with the exception of a few isolated grants from the Treasury), and uncontrolled by the State. A large number of charities for the education of the poor had been founded by the benevolence of a former age, but many of them had fallen into complete neglect, whilst others, though doing some educational work, had in course of time been perverted from their original design. In Scotland, a large number of parochial schools had existed for generations, but in England and Wales good schools were few and far between, the school-houses were often squalid, with miserable furniture, few books, and scarcely any other school appliances. The attendance of the children was irregular ; their attainments were wretched. The teachers were often ignorant adventurers, who had adopted the profession when they had proved their utter incompetency for any other calling, while those who possessed any knowledge were ignorant of good methods of imparting it. Riot and disorder were kept under only by the most savage discipline.

"A few philanthropists, and notably Joseph Lancaster, had endeavoured to cope with the ignorance and immorality of the masses, by labouring to extend the education of the poor, irrespective of denominational teaching, and the British and Foreign School Society, at first named the Royal Lancasterian Society, was founded in 1808 for the purpose of encouraging the education of the children of the poor in the principles which Lancaster had advocated with so much zeal and self-sacrifice.

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"Three years later the "National Society for Promoting the Education of the Poor in the Principles of the Church of England," was established. These two Societies struggled bravely on, doing their best, with the limited means at their disposal, against the lethargy of the public and the vice and ignorance of those for whose benefit they came into existence.

"In the year 1839-40, Dr. James Phillips Kay (now Sir James Kay-Shuttleworth), and Mr. Carleton Tufnell founded a College at Battersea, for training a number of young men as schoolmasters. This institution afforded a generally superior education, and special instruction in the best methods of imparting knowledge to children; while an elementary school, adjoining the College, exemplified these methods, and enabled the students to put them into practice. The history of the College, and of its rapid and continual progress to the present time, is detailed in the Reports of the Committee of Council. More than 1,500 young men have passed through it and been added to the ranks of the teachers. Not a few of these have gained eminence, and all look back on the days they spent within its walls as amongst the most valuable of their lives, and regard its founders with esteem and affection.

"Dr. Kay united to varied attainments, great energy and decision of character; and when the Government of Lord John Russell determined on forming the Committee of the Privy Council expressly to administer an education grant from the public exchequer, Dr. Kay was appointed its Secretary. The early Minutes and Reports of the Committee of Education, set forth the educational destitution of the country, and the generous and statesmanlike policy pursued by Sir James Kay-Shuttleworth.

Table showing the successive Chiefs of the Education Department since the formation of the Committee of Council on Education.

Date.	Lord President.	Vice-President.	Secretary.
1839-41	Marquess of Lansdowne		Dr. James Phillips Kay, afterwards Sir James Kay- Shuttleworth, Bt. (1839-48).
1841-46	Lord Wharncliffe		
1846-52	Marquess of Lansdowne		Ralph Robert Wheeler Lin- gen, Esq., C.B. (1848-70)— now Secretary to the Treas- ury.
1852-53	Earl of Lonsdale		
1853-54	Earl Granville		
1854-55	Lord J. Russell		
1855-58	Earl Granville	Right Hon. W. Cowper-Ten- ple, M.P.	
1858-59	Marquess of Salisbury	Right Hon. Sir C. Adderley, M.P.	
1859-66	Earl Granville	Right Hon. Robert Lowe, M.P. (1859-64)	
1866-67	Duke of Buckingham and Chandos	Right Hon. H. A. Bruce, M.P. (1864-66)	
1867-68	Duke of Marlborough	Right Hon. H. T. L. Corry, M.P.	
1868-73	Marquess of Ripon	Right Hon. Lord R. Montagu Right Hon. W. E. Forster, M.P.	Sir Francis Richard Sandford, C.B., LL.D. (1870 to the present time).
1873-74	Lord Aberdare	Viscount Sandon, M.P.—the present Vice-President.	
1874-77	Duke of Richmond and Gor- don, K. G.—the present Lord President.		

"From the first Report of the Committee of Council made to the Queen, we find that Parliament, in 1839, voted £30,000 for administration by the Committee of the Privy Council for the purpose of elementary education during that year. The amount which had been applied for by persons desiring aid was £18,590, and the number of children on whose behalf this amount was asked, was £58,302.

"The Committee of Council at first restricted their operations to making grants in aid of the erection of schools, and in all cases they insisted that the school should be in connection with either the National Society or the British and Foreign School Society. It was not until some years afterwards that grants were made on behalf of Roman Catholic and other denominational schools. The great aim of the Committee was, by offering liberal grants, to

induce influential persons to form local committees for the purpose of building, maintaining, and managing permanent schools. They offered 10s. per head for every child to be accommodated, and required that local subscriptions should provide the rest. Knowing that their most powerful allies would be the clergy and ministers of the various denominations, the Committee of Council made the daily reading of the Scriptures an indispensable portion of the instruction to be given in the schools; and, while advocating the complete liberty of the parent in respect of the withdrawal of his child from religious instruction, if he were so minded, their Lordships were of opinion "that no plan of education should be encouraged in which intellectual instruction was not subordinated to the regulation of the thoughts and habits of the children by the doctrines and precepts of revealed religion."*

"In all cases where grants were made, the Committee of Council insisted on the right of inspection of the schools by their own officers.

"The inspectors, then very few, may be said to have been the pioneers of education, and the character and results of their labours are fully detailed in their annual Reports to the Committee of Council. A comparison of the school destitution of the country then (1839), and of the school provision existing in 1870—a date which marks a new epoch in the history of public education—will show what an excellent work was done during this period.

"Not merely had the whole educational field to be broken, but scientific methods of instruction had to be devised or introduced.† Indeed, to the early labours of Sir James Kay-Shuttleworth and his colleagues is, in a great measure, owing the immense improvement that has taken place in the *science* of teaching in higher grade schools, as well as in those for the poor.

"In November, 1843, their Lordships determined to make grants towards the erection of schoolmasters' houses, towards the purchase of apparatus, and in aid of the erection of training-schools; and they also offered special grants to exceptionally poor and populous places, and a large number of localities soon participated in these benefits.

"In 1846 the Committee of Council made another and most important stride.

"It was clear that success in this new work of the education of the poor, must wholly depend on the character and attainments of the teacher. Handsome school-buildings and liberal supplies of school apparatus would be valueless, unless the teacher were competent, high-minded, devoted, and zealous. To create a body of well-qualified and well-paid teachers, who should command confidence and respect by their ability and character, became the great aim of Sir J. Kay-Shuttleworth. It was not likely that education would be sought or valued if those who imparted it were not held in respect, nor their office deemed a high and important one. With these views the Minutes of 1846 seem to have been framed. They provided for the annual payment to every teacher in charge of a school, of not less than £15, nor more than £30, in augmentation of the salary paid by the managers, *on condition that he should obtain by examination a certificate of merit*, that his school should be *annually* reported by one of Her Majesty's inspectors, to be efficiently conducted, and that his character and conduct should be satisfactory to his employers.

"To each possessor of the certificate of merit actually in charge of a school, the Minutes offered the payments above named, requiring that *double* the amount awarded from the public grant to the teacher, should be provided by the *locality*, *one-half* of which was to be obtained from *voluntary subscriptions*. By the prospects thus set forth, and by the tone of respect and sympathy shown for the teachers in all official relations with them, a large number of superior persons were soon added to their ranks.

"In order to ensure a *succession of well-trained teachers*, and to provide competent assistance in the schools, the Committee of Council inaugurated the system of paid *PEEL-TEACHERS*, which has been so prominent a feature and so marked a success of the elementary school system of this country.

* It will be gratifying to those who still hold this conviction, to see, by Returns presented to Parliament in the sessions 1875 and 1876 respecting *Religious Observances in School Board Schools*, that of the Boards then in existence very few excluded religious teaching from their schools, and that many provided an elaborate course of religious instruction, and caused their schools to be opened with prayers and hymns, followed by the reading of the Scriptures, with explanations suited to the age and capacity of the scholars.

† One of the Reports (1840) contains a most valuable paper on the "Constructive Method of teaching Reading and Writing."

"Already Joseph Lancaster and Dr. Bell had done much for the monitorial system, by which a large number of children were taught in one school by being divided into classes under the older and more proficient scholars, while the teacher kept order and governed the whole school. But the system had grave defects. The monitors were put to the work of teaching and superintendence when they were too young to have learned much themselves, whilst they had few or no methods of imparting what they knew. And, as they were paid little or nothing for their services, the exigencies of their parents usually compelled their removal from school at a very early age. By the minutes of 1846, however, the Committee of Council greatly improved on the monitorial system. They offered to every pupil-teacher whose parents or guardians consented to apprentice him (or her), for a term of years (usually five), commencing at thirteen years of age, an annual stipend beginning at £10 for the first year of apprenticeship, and rising by yearly increments to £20 for the last year.

"The pupil-teacher was required to be of good character, and come from a respectable home. He was required to pass an examination before the inspector prior to admission, and at the end of each year of his apprenticeship. He was to assist the teacher in the instruction of the scholars during the school hours, and to receive separate instruction from the teacher for one hour and a half daily. This was an additional boon and stimulus to the teacher, for, besides having the daily-increasing benefit of the service of the oldest and most intelligent of his scholars, he had the advantage of adding to his own attainments when studying with them alone. Moreover, as the Committee of Council offered him an annual gratuity for each pupil-teacher who passed a creditable examination before the inspector, it was to his interest to seek for candidates likely to do him credit.

"The course of instruction for pupil-teachers was prescribed and carefully graduated by the Committee of Council, and their annual stipends were dependent on the certificates from the managers and the report of the inspector; and at the completion of their apprenticeship they were generally well prepared for admission to a training-college. They were induced to enter the colleges by the offer of Queen's scholarships, which consisted of exhibitions of the value of 20*l.* to 25*l.*, paid by the Committee of Council on behalf of every candidate who passed the prescribed examination and entered the college.

"The Committee of Council also provided for substantial annual aid to the training-colleges themselves, which aid has formed one of the most important features in the system administered by the Committee of Council.

"These colleges, of which there are now in England and Wales 18 for masters and 23 for mistresses, were mostly founded by grants from the National or British and Foreign School Society, and have been supported principally by the voluntary subscriptions which the various denominations entrusted to these societies to administer. The Committee of Council had already voted substantial aid towards building most of the training-colleges already founded, and they now proposed to pay the sum of 20*l.* for every student residing one year, 25*l.* for the second year, and 30*l.* for the third year of his training.

"The colleges offered free board, lodging, and tuition to candidates who passed the examination prescribed by the Committee of Council. During their residence in the college the students are carefully taught by competent professors, not merely in the usual subjects of instruction, but the greatest care is taken to place before them the best known methods of imparting knowledge to the young; and at regular and frequent intervals they are employed, in elementary schools adjoining the colleges, in teaching classes, under the direction and criticism of experienced masters.

"The training-college system gave emphasis to the fact that the person who presumed to rule and guide the young, who, for good or ill, was to leave an indelible impress upon them and who was to bring them up religiously and morally, ought not to be entrusted with such a responsibility without careful selection and proper training.

"When it is added that pensions were to be provided for deserving teachers of long service, and that provision was made for the annual inspection of every school seeking a grant, by inspectors whose position and emolument freed them from any suspicion of partiality, the scope and intention of the celebrated Minutes of 1846 will be understood.

"Of the value of the work performed by Her Majesty's inspectors of schools it would be difficult too speak to highly. It was their duty to report minutely on the condition of the school-premises, on the supply of books and apparatus, and to put the classes through a searching examination; and, as on their Reports to the Education Department depended

the payment of the grant, it will be understood how great was the demand made upon them for ability, accuracy, discrimination, and firmness. Besides a detailed Report on each school, which nicely weighed the results of the examination, the inspector made a general Report every year on the state of education in his district. These General Reports were, and continue to be, laid before Parliament, and they now cover the period from 1839 to 1875, forming a most valuable record of the progress of elementary education in this country, and testifying to the great ability and industry of their authors.

"Mr. Matthew Arnold, one of Her Majesty's inspectors of schools, looking back on the Minutes of 1846, says in his Report (1871-2) :—

"The growing concern for popular education, and the growing sense of the magnitude of the interests which depend upon it, of themselves do much to direct notice to the profession of teacher, to invite aspirants to it, and to free it from the disavowal which in these last years it had incurred. There is no doubt that it is becoming easier to obtain pupil-teachers, and this return of the tide has, probably, by no means yet reached its highest point. No policy could more judiciously further this happy movement than the policy which the School Board of London is announcing its intentions to follow. By offering to the teacher, in addition to his fixed salary, a moiety of the examination grant, it proposes to restore its augmentation; by offering to him special payments for the instruction of pupil-teachers, it proposes to restore his pupil-teacher gratuity. It is well known how heavy a discouragement the withdrawal by the Revised Code of the augmentation grant to teachers was felt by them to be; it is well known how the withdrawal of the gratuity for instructing pupil-teachers diminished the zeal in finding them. It may well be urged that local Boards can employ with advantage a system of appropriated grants which, when it reached a great scale, became inconvenient for the central Government to employ, and the force of this plea for the Revised Code I by no means underrate; but, still, it may be permitted us, who remember the Minutes of 1846, to see with satisfaction that a body of men like those who make up the London School Board, desiring to attain that primary and essential requisite for popular education, a supply of good teachers, revert to the Minutes of 1846 and to the policy of their author."

"Some of the immediate results of these Minutes will be seen from the following statement:—

"In 1860 the number of schools under regular *annual inspection* had increased to 2,000, while the number of children accommodated therein was nearly half-a-million. There were 3,000 male and 1,500 female pupil-teachers, and there were 17 training-schools, with 205 resident students. Between 1839-50 Parliament had voted, for buildings, augmentations, and stipends, grants to the amount of 560,000*l.*

"In all the schools careful instruction in religious knowledge was imparted, frequently by the clergyman of the parish or by members of his family. The girls were taught plain needlework, and most of the children who stayed until they had completed their tenth or twelfth year could read, write, and cypher fairly and intelligibly; but the Reports of the inspectors constantly urge the necessity for compelling the regular attendance of children at school, before the efforts of the teachers could result in substantial and lasting benefit to their scholars.

"Notwithstanding the progress hitherto made, it was found that very many districts were still unable to take advantage of the benefits offered by the Committee of Council. The Government only helped those who helped themselves; and, in many districts where schools had been established, it was found impossible to raise, voluntarily, sufficient subscriptions to maintain them. Some forcible and earnest pleas for more help, and that *annually*, to poor districts, were answered in 1853 by the *Capitation Grant* on the attendance of the children. To schools *in rural districts* the Committee now offered, in addition to the usual augmentations and stipends, 6*s.* for each scholar, in schools with less than 50 children in average daily attendance; 5*s.*, in schools of more than 50, but less than 100; and 4*s.*, in schools of more than 100, and less than 150. As a condition of this grant it was required that a scholar should make 192 attendances in the school-year, and that the children's fees were not to exceed 4*d.* per week.

"The progress made during the five years from 1850 to 1855 was considerable. Whereas up to 1850 the total amount expended from the Parliamentary grant was, as we have stated above, £560,000, it had reached in 1855 a total of £2,000,000. The principal items of expenditure during the period from 1839 to 1855 stand thus :—

" Building elementary schools.....	£580,000
" normal Schools.....	147,000
" Providing maps.....	16,900
" apparatus.....	500
" Augmentation grants.....	160,000
" (assistants)	7,000
" Pupil teachers' stipends.....	664,000
" Capitation Grants	160,000
" Annual grants to normal schools	151,000

" The schools which had been either newly built, or improved and enlarged, with aid from the grants during the same period gave accommodation for upwards of half-a-million.

" The number of teachers who had gained certificates of competency was 3,431, viz, 2,241 masters and 1,190 mistresses; and there were in 1855 under their superintendence 4,910 male and 3,614 female pupil teachers.

" In January, 1856, the Capitation Grant was extended to *town schools*, on the same conditions as those which had been required to be fulfilled in country schools; and the stimulus thus given added greatly to the number of schools, teachers, and children, for whom aid was sought annually from the Parliamentary grant. At the time of the issue of the Code of 1860 the number of certified teachers had risen to upwards of 7,000 and of pupil-teachers to more than 16,000; whilst the number of scholars in average attendance exceeded 700,000. There was school accommodation for nearly one million, and the amount spent from the public funds had reached a total of £5,000,000. The average annual expenditure from *local sources* per scholar accommodated was 18s. 9d., the average annual amount contributed by the Government being about 10s. The educational activity of the country at this period will be at once seen from the following short statement made in the Report of the Committee of Council for 1860 :—

" In 1839 Parliament voted	£30,000
" In 1849 " "	125,000
" In 1859 " "	770,000

" In 1858, a Royal Commission had been appointed to inquire into Popular Education. Their Report, which was published in 1861, recommended (*inter alia*) that—

" 1. Grants should be expressly apportioned upon the examination of *individual* children.

" 2. Means should be taken for *reaching more rapidly* the places not hitherto aided with the money voted for public education.

" 3. The administration of the grant should be simplified . . . in the important sense of withdrawing Her Majesty's Government from *direct* financial interference between the managers and teachers of schools.

" The Commissioners suggested that the old organization of inspection, and of certificated and pupil-teachers should be retained, and highly commended the work that had been done.

" In 1860, the various Minutes of the Committee of Council had been digested into a Code, and, acting on this Report, the Committee of Council endeavoured to carry out the recommendations of the Commissioners above mentioned. Grants were to be offered (a) upon the average attendance of the scholars, (b) on their individual examination. Direct payments to teachers of every class were abolished. The grant earned was to be paid directly to the managers, who were left to make what terms they pleased with the teachers as to service and salaries, provided that the requirements of the Code were complied with.

" The changes involved were great; but, after much discussion, during the recess of 1861 and the early part of the session of 1862, the revised Code became law.

" Its result was, in the first instance, discouraging to managers and teachers. But, after the first discouragement had passed away, a steady increase took place in the number of aided schools, and the staff of certificated and pupil-teachers was steadily augmented. If bad or indifferent schools obtained less of the grant, good ones earned as much as they did under the old system; the amount expended from the vote for the year 1870, was £840,000. The schools under inspection in that year would accommodate 2,152,712 scholars, and there were

on the registers the names of 1,949,026 children. In the same year there were nearly 15,000 certificated teachers; and 2,500 students were resident in training schools.

"This statement brings us to the close of the purely voluntary era of public education. In thirty years the zeal, the self-sacrifice, and the continued and steadfast work of the voluntary managers of schools (aided by their parent Societies and the State) had made provision for upwards of two millions of children; had brought into existence and maintained a large army of teachers and pupil teachers; and had spent during the same period, probably, fifteen millions—the total amount awarded from the public funds being £11,863,000.*

"In spite, however, of this admirable work much remained to be done. There were still more than one million of children for whom there was no proper school accommodation, and who were quite out of the reach of sound elementary instruction. The close competition of neighbouring countries in manufactures, which had once been almost entirely in English hands, was a subject of anxiety, and it was felt that the maintenance of our manufacturing and commercial supremacy depended largely on a more thorough instruction, both elementary and technical, of our artisan and labouring classes.†

"Moreover, the passing of the Representation of the People Act of 1867, had an influence in the same direction.

"In February, 1870, the Right Hon. William Edward Forster, Vice-President of the Committee of Council on Education, brought in his "Bill to provide for Elementary Education in England and Wales." The main object of this measure was to provide, compulsorily, a supply of efficient schools in those districts which before had failed to supply them voluntarily.

"Its second characteristic is that it renders possible the enforcement of attendance at school of children of school age; but this provision is of *practical effect* only so far as a district may have been unwilling to provide, of its free action, the required school accommodation; or may, in order to obtain such a power, be willing to undertake the trouble and expense of creating a special body for its exercise.

"Mr. Forster did not ignore the splendid services rendered to education by the different religious bodies; nor did he, while paying them their just meed of praise, aim at supplanting the schools which had been provided by them.‡ On the contrary, while

*Table showing the Amounts voted by Parliament for Public Elementary Education in the Years 1839-76.§

Year.	Amount.	Year.	Amount.	Year.	Amount.	Year.	Amount.
	£		£		£		£
1839	30,000	1849	125,000	1859	836,920	1868	781,324
1840	30,000	1850	125,000	1860	798,167	1869	840,711
1841	30,000	1851	150,000	1861	803,794	1870	914,721
1842	40,000	1852	160,000	1862	842,119	1871	1,458,492
1843	50,000	1853	260,000	1863	804,002	1872	1,551,500
1844	40,000	1854	263,000	1864	705,404	1873	1,299,603
1845	75,000	1855	396,920	1865	693,078	1874	1,356,852
1846	100,000	1856	451,213	1866	694,530	1875	1,518,563
1847	100,000	1857	541,233	1867	705,865	1876	1,707,055
1848	125,000	1858	563,435				

† Reference to this subject will be found on page .

‡ THE NATIONAL SOCIETY has upwards of 14,000 schools in union with it. More than eight thousand teachers have been trained in its institutions, and it has directly distributed nearly one million pounds towards the erection and maintenance of training-colleges and National Schools.

THE BRITISH AND FOREIGN SCHOOL SOCIETY has several thousand schools in connection with it. It supports five training-colleges, has a large annual revenue, and has spent during its most useful career considerable sums in extending and improving elementary education.

THE ROMAN CATHOLIC POOR SCHOOLS COMMITTEE, THE WESLEYAN EDUCATION COMMITTEE, AND THE HOME AND COLONIAL SCHOOL SOCIETY have also largely contributed to the spread of elementary education by the maintenance of excellent training-schools and the erection of elementary schools.

In Scotland similar work has been performed by the Education Committee of the Church of Scotland and Free Church.

§ These sums include the money awarded to Schools in Scotland.

demanding that all schools seeking aid from the Parliamentary grant, should provide for the complete liberty of the parent, as to the presence or withdrawal of his child from the religious instruction given therein, he provided for a liberal annual grant to them on the fulfilment of the usual conditions.

"As a consequence, a large number of districts, which have sufficient schools, still retain the great benefit of the personal interest and oversight of those who for years have devoted their culture and knowledge to the service of the children under their charge.

"The new Education Act has been five years in operation, and the accompanying extracts from the Report of the Committee of Council in 1875* will show how rapidly the school supply of the country is being provided :—

"The following table of statistics abstracted from the Reports of the inspectors on the schools visited by them in 1870, and in each of the last three years, shows clearly the rate of progress in the period which has elapsed since the passing of the Elementary Education Act of 1870 :—

II. STATISTICS OF EDUCATION IN ENGLAND AND WALES, 1870-1874.

	Years ending August 31.			
	1870	1872	1873	1874
I.—ESTIMATED POPULATION	22,090,163	23,067,835	23,356,414	23,648,609
II.—NUMBER OF SCHOOLS (Institutions) inspected	8,919	10,683	11,846	13,163
III.—ANNUAL GRANT SCHOOLS:—				
Number of Departments—				
1. Day	12,061	14,101	15,929	17,646
2. Night	2,504	2,063	1,395	1,432
Accommodation—				
1. Day schools	1,878,584	2,295,894	2,582,549	2,861,319
2. Night schools (not connected with day schools)				10,507
Present at examination—				
1. Day scholars	1,434,766	1,607,511	1,811,595	2,034,007
2. Night scholars	77,918	61,168	35,621	36,729
Average attendance—				
1. Day scholars	1,152,389	1,336,158	1,482,480	1,678,759
2. Night scholars	73,375	66,388	45,973	48,690
Voluntary contributions	£418,839	£463,385	£539,502	£602,836
Rates		£5,085	£61,210	£135,991
School pence	£502,022	£599,283	£688,296	£814,283
Government grants	£587,490	£789,689	£919,857	£1,050,259
IV.—SIMPLE INSPECTION SCHOOLS—				
1. Accommodation	51,962	83,935	82,917	91,160
2. Present at inspection	39,122	54,260	52,496	59,304
3. Average attendance	16,599	29,798	30,099	32,192
V.—NUMBER OF TEACHERS—				
Certificated	12,467	14,771	16,810	18,714
Assistant	1,262	1,646	1,970	2,489
Pupil	14,304	21,297	24,674	27,031
Studying in training colleges	2,097	2,618	2,896	2,982

"The Department also state that the accommodation in 838 Board Schools, provided for 245,508 scholars; and that the increase in the accommodation in *voluntary schools* since 1869, has amounted to 860,374 places.

* The Report for 1875-6 is not yet published.

"The following table shows the number of School Boards which were formed up to October 1, 1875, in England and Wales, and the number of districts in which by-laws for the compulsory attendance of children at school are in force :—

III. POPULATION OF ENGLAND AND WALES (Census 1871).

ENGLAND.

London	3,266,987	
203 Municipal boroughs	6,327,566	
13,051 Civil parishes	11,900,578	
Total (England)		21,495,131

WALES.

21 Municipal boroughs	204,416	
1,031 Civil parishes	1,012,689	
Total (Wales).....		1,217,135
Total (England and Wales)		22,712,266

TOTAL POPULATION UNDER BOARDS.

ENGLAND.

London	3,266,887	
104 Boards in 104 boroughs	5,308,423	
1,298 " 1,784 parishes	3,201,025	
		11,776,435

WALES.

15 Boards in 15 boroughs	185,582	
235 " 360 parishes	560,520	
		746,102
		12,522,537

TOTAL POPULATION UNDER BY-LAWS.

ENGLAND.

London	3,266,987	
92 Boards in 92 boroughs.....	5,173,131	
351 " 424 parishes	1,537,153	
		9,977,271

WALES.

11 Boards in 11 boroughs	169,622	
71 " 109 parishes	320,722	490,344
		10,467,615

med up to
aws for the

"The Department estimate that 3,250,000 children ought to be in average daily attendance in elementary schools. At present the power to compel children to attend a school is in the hands only of School Boards. This difficulty must be overcome before the work of many eminent statesmen and able officials can be called complete.

"Doubtless, each year will make its solution more easy. Arbitrary barriers to merit and ability are daily being removed. We may, therefore, hope that the day is not far distant when the whole of the children of the poor will be daily brought under such educational influences as will tend to make them peaceful and useful citizens, and religious and cultivated men.

IV. ANALYSIS OF THE ENGLISH EDUCATION CODE, 1876.

"The money annually voted by Parliament for public education in England and Wales is administered by the Education Department.

"The grants are made to aid local exertion in maintaining elementary schools for children and training-colleges for teachers.

"An elementary school is a school at which elementary instruction is the principal part of the education there given, and at which the fees do not exceed 9d. per week per scholar. Every school for which a grant is claimed must be a public elementary school within the meaning of Section 7 of the Elementary Education Act, 1870.

"The grants made by the Department are made once a year, to the managers of the school only, after a Report from one of Her Majesty's inspectors of schools that the conditions prescribed by the Code as to the suitability of the school buildings and appliances, the qualifications of the teachers, and the attendance and proficiency of the scholars have been fulfilled.

"No grant is paid for any instruction in religious subjects, and Her Majesty's inspectors do not examine the scholars therein.

"The managers of a school (which term includes a School Board—desiring to obtain annual aid towards its maintenance, should appoint some one member of their body to correspond with the Department on their behalf.

"If the school is placed on the list for inspection, a month is fixed in which the inspector will annually examine the scholars. The inspector may visit a school at any other time without notice.

"Teachers cannot act as managers of, or correspondents for, the schools in which they are employed, nor can they be recognized by the Department as members or officers of School Boards.

"BUILDING GRANTS.—The Department no longer receive any applications for aid towards building, enlarging, improving, or fitting up schools. Only those applications made for these objects before December 31, 1870, and not yet determined, are entertained.

"ANNUAL GRANTS.—*Preliminary Conditions.*—The school must be conducted as a public elementary school, and the managers may derive no emolument from it. No child may be refused admittance on other than reasonable grounds. The school premises must be healthy, well lighted, warmed, drained, and ventilated; properly furnished; and supplied with suitable offices. There must also be in the school-room and class rooms eighty cubical feet of internal space, and eight square feet of area, for each child in average attendance.

"The principal teacher must be *certificated*, and must not undertake any work which interferes with his school duties.

"The managers must immediately notify to the Department any change in the school staff which may occur during the school year.

"Girls in a day school must be regularly taught plain needlework and cutting-out.

"All returns called for by the Department must be made, the registers must be carefully marked, the accounts of income and expenditure must be accurately kept and duly audited.

"Three responsible managers of the school must designate one of their number to sign the receipt for the grant.

95,131

17,135

12,266

7,435

46,102

22,537

7,271

0,344

7,615

"These *essential conditions* being fulfilled, the following grants may be earned by day schools :—

"The school having been open 100 times (morning and afternoon) may earn :

"1. *On Average Attendance*.—1. 4s. for every scholar in average attendance ;

"2. 1s. if singing is part of the ordinary instruction ;

"3. 1s. if the discipline and organisation are satisfactory.

"2. *On Presentation*.—They may also earn for every child *present on the day of examination*, and who has attended at least 250 meetings of the school.

"(a) If between four and seven years of age,

"(a) 8s., if taught as a *class* of a school suitably to their age, and in a manner not to interfere with the older children ; or

"(b) 10s., if taught in a separate and suitably-furnished department, and by a certificated teacher of their own.

"3. *On Examination*.—(b) If more than seven years of age,

"3s. for each pass in Reading, Writing, or Arithmetic ; or

"4s. for each such pass in an Infant School or Department.

"After March 31, 1878, no grant will be paid for any scholar who passes in only *one* of these subjects.

"The results of the examination of each scholar will be communicated to the managers.

"Every scholar who has made the requisite attendances *must* be presented for examination.

"4. *Class Examinations*.—If the *classes* (from which the children are examined in Standards II. to VI., or in specific subjects) pass a creditable examination in any two of the following subjects, viz., *grammar, history, elementary geography, and plain needlework*, the managers may claim an additional 4s. per scholar, above seven years of age, in average attendance.

"Only 2s. per head will be paid if less than 10 per cent. of the scholars examined are presented in Standards IV. to VI.

"5. *Grants for Specific Subjects*.—If the time-table, in use throughout the year, has provided for one or more *specific subjects*, viz., English literature, mathematics, Latin, French, German, mechanics, animal physiology, physical geography, botany, and domestic economy, a grant of 4s. per subject will be paid for every day scholar, presented in Standards IV. to VI., who passes satisfactorily in not more than *two* of these subjects ; but this payment will not be made unless 75 per cent. of the passes attainable in the *standard examination* has been obtained. A scholar who has previously passed in Standard VI. may (if qualified by attendance) be presented in *three* of these subjects.

"6. *Grants to Small Rural Schools*.—£15 (subject to a report from the inspector), if the population within two miles, by road, of the school is less than 200 souls, and there is no other public elementary schools, with sufficient accommodation for such population, within three miles of the school. If the population is more than 200, but less than 300, a grant of £10 is made.

"7. *Grants in Respect of Pupil-teachers*.—The sum of 60s. in respect of each pupil-teacher who produces *good* certificates of character, and passes a satisfactory examination. If the examination or the certificates produced are only *fair*, only 40s. will be paid.

"EXCEPTION AS TO ATTENDANCES.—150 attendances are accepted in place of 250 in the case of

"(a) Scholars attending school under any half-time Act.

"(b) Scholars above ten,

"(1) Who obtain certificates in pursuance of Section 74 of the Education Act, or of any by-laws of a School Board ;

"(2) Who (not being in any district where by-laws are in force) are certified by the managers to be beneficially employed.

"(c) Scholars who reside two or more miles from the school.

"GRANTS TO EVENING SCHOOLS.—If the school has been open at least forty-five times in the course of the evening school year,

"(a) 4s. per scholar in average attendance ;

"(b) For every scholar who has been under instruction not less than forty hours,

2s. 6d.	for passing in Reading,
2s. 6d.	" Writing,
2s. 6d.	" Arithmetic.

"CALCULATION OF ATTENDANCE.—Attendance in a day school may not be reckoned unless the scholar has been under instruction in *secular subjects*,

"(a) If above seven years of age two hours,

"(b) If under seven " one and a half hour.

"Attendance in an evening school must be for at least *one hour*.

"The attendance of boys at *military drill*, and of girls at lessons in *practical cooking* by competent instructors may be counted as school attendance; but not more than *two hours* a week, nor more than *forty hours* in the year, may be so counted.

"Attendance may not be reckoned for any scholar in a day school under three or above eighteen, or in an evening school under twelve or above twenty-one years of age.

"The attendances of half time scholars reckon as those of other scholars.

"STANDARDS OF EXAMINATION.—The requirements of the standard examination are set forth in the Act.

"A scholar may not be presented under a *lower standard* than that in which he has been previously examined, nor in the *same standard* unless he has failed to pass in *two subjects*.

"REDUCTION OF THE GRANT.—The grant claimable under the Act is reduced by its excess above—

"1. The income of the school from fees, rates, and subscriptions.

"2. One-half of the annual expenditure on the maintenance of the school.

"The grant is liable to a reduction of *one-fifth* to *one-half* for serious defaults of instruction, disciplin, or registration, for defects in the premises, or deficiencies in school furniture and appliances

"It is further liable to deduction if the school is three months without a certificated teacher; or if a sufficient staff of pupil teachers is not provided.

"A school of 60 children requires *no* pupil teachers,

" 61 to 100 requires *one* pupil-teacher,

" 101 to 110 requires *two* pupil-teachers,

and so on; another pupil-teacher being required for every additional 40 scholars. One assistant teacher is equivalent to two pupil-teachers.

"Increased attendance during the year causes no deduction.

"SCHOOL DIARY OR LOG-BOOK.—The managers must provide a copy of the Code, registers of attendance, a diary or log-book, and a portfolio to contain the official correspondence.

"The diary is to be in the charge of the principal teacher; and he is to record in it, at least once a week, entries of general progress, visits of managers, changes in staff, &c. The Inspector's Report, communicated by the Department, must also be copied into it.

"TEACHERS REFERRED TO IN THE CODE.—*Lay* persons can only be recognised as teachers, who are of three classes, (a) certified teachers, (b) pupil-teachers, (c) assistant teachers.

"CERTIFIED TEACHERS.—1. Certificates (*with the exceptions to be noted presently*) are granted after examination. The examinations are held in December of each year, at the several training colleges and other centres.

"The Syllabus of the subject is forwarded from the Department on application.

"The examination is open to (a) students resident in the training-colleges, (b) other persons who are twenty one years of age and have either,

"(1) Completed an apprenticeship as a pupil-teacher satisfactorily;

"(2) Obtained a favourable report from an inspector; or—

"(3) Served as assistants for at least six months, in schools under a certificated teacher.

"The names of acting-teachers desiring to be examined must be notified to the Department before October in each year.

"Acting teachers may take the papers either of the first or second year.

"A list of successful candidates is published, and the result of the examination is recorded on the certificates.

"Before certificates are *issued*, the candidates who have passed the examination, must, as teachers continuously engaged in the same schools, obtain two favourable reports from an inspector. Teachers during this probation are counted as certificated for the purpose of the *annual grant*.

"Certificates are of three classes. They are raised from the second to the first class only by service; from the third to the second only by re-examination. A certificate of the third class does not entitle the holder to have the charge of pupil-teachers.

"CERTIFICATES GRANTED TO PERSONS FOR LONG AND GOOD SERVICE WITHOUT EXAMINATION.—Certificates of the third class may be granted *without examination* to teachers who satisfy the following conditions:—

"1. *As to age*. They must be over 25 years of age.

"2. *As to service*. They must have been teachers of elementary schools for at least 5 years.

"3. *As to character*. They must present certificates of good character from the managers of their schools.

"The inspector must report,—

"1. That they are efficient teachers.

"2. That 20 children *at least* who had been in their schools during the preceding six months were individually examined.

"3. That at least 15 of the 'passes' made by these scholars were above Standard 1.

"No applications for certificates under this Article will be entertained after March 31, 1879.

REPORTS OF MANAGERS AND INSPECTORS.—Certificates may at any time be *recalled*, *suspended*, or *reduced*, and are continued subject to a report from the managers as to character, and from the inspector as to efficiency.

"PUPIL-TEACHERS.—Pupil-teachers are *boys or girls* (not adults); and their employment (but not more than 4 to every certificated teacher engaged in the school) is sanctioned on condition that the principal teacher is certificated, and that the general condition of the school satisfies the usual requirements. They must be not less than 13 years of age (completed), and of the same sex as the teacher. In a *mixed* school, however, a female pupil-teacher may serve under a master, if some respectable woman is present while the private lessons are being given.

"The managers, the pupil-teacher, and his surety must enter into an agreement in the terms of the memorandum set forth in Schedule II. of the Code.

"The Department is no party to the agreement, but will arbitrate if requested.

"Pupil-teachers are required to produce good certificates from the managers and teacher, and to pass an examination before Her Majesty's inspector on entering and at the end of each year of their apprenticeship.

"Vacancies cause a reduction of the grant unless filled up at the next examination.

"*Temporary monitors* may be engaged to fill vacancies of pupil-teachers occurring in the course of the school year.

"The first Schedule annexed to the Code sets forth the qualifications and certificates required of pupil-teachers.

"Pupil-teachers, at the close of their engagement, may become assistants, be provisionally certificated, or enter a training-college. They are *perfectly free in the choice of their employment*.

"ASSISTANT TEACHERS.—Pupil teachers who have completed their apprenticeship creditably, or persons who have passed the examination for admission to a training-school, are recognized as assistants in place of pupil-teachers without further examination. Assistants must be reported as efficient, and produce certificates of good conduct. They are counted as part of the school staff (being equivalent to two pupil-teachers), and make their own terms with the managers as to wages and service.

"TRAINING COLLEGES.—A training college includes a college for boarding, lodging, and instructing candidates for the office of teacher, and a practising school where they may learn the exercise of their profession. The grants to these training-colleges are regulated by law.

"The examination of the students resident in them is regulated by the Act.

"The examination of candidates for admission will be held annually in *July*.

"The candidates are selected by the authorities of the training-college, with whom they must agree (in writing) to *adopt and follow* the profession of teacher.

"Candidates must, *if pupil-teachers*, have successfully completed their engagement; if *not pupil-teachers*, be 18 years of age on January 1st next following the date of the examination.

"The authorities of each training-college settle their own terms of admission.

"EVENING SCHOOLS.—The managers of any school to which inspection has already been promised must apply *annually* to the inspector of the district for an examination of their school. The examination may take place on any day between February 1 and April 30. The grant is paid either with the grant to the day school, or if the accounts are kept *quite separate*, as soon as possible after April 30.

"If there are less than 20 scholars they are examined at some centre fixed by the inspector.

"CERTIFICATES UNDER LABOUR ACTS.—For the purpose of granting certificates pursuant to the Agricultural Children Act, and other Acts regulating the education of children employed in labour, the Department have made special provisions for their examination, and for the issue of the certificates. The regulations under which they are granted, and under which the persons applying for them must act, are set forth in the Act.

"The Act provides for the granting of pensions to teachers.

"Following the Articles of the Code are five Schedules, which contain:—

"I.—Qualifications and Certificates of Pupil-teachers at admission and during their engagement.

"II.—Pupil-teachers' Memorandum of Agreement.

"III.—Portions of the Code of 1870 relating to Building Grants.

"IV.—Table of Specific Subjects of Secular Instruction.

"V.—Supplementary Rules."

STATE AND PROGRESS OF EDUCATION IN IRELAND.

13. IRELAND.—From the last Report of the Irish National Board of Education, I extract the following interesting facts relating to the progress of Education in Ireland, from 1833:—

No. and Date of Report		No. of Schools in operation.	No. of Children on the Rolls for:	
No. 1	31st December, 1833	789	Half-year ending 30th September.	107,042
No. 2	31st March, 1835	1,106	do do	145,521
No. 3	do 1836	1,181	do do	153,707
No. 4	do 1837	1,300	do do	166,929
No. 5	do 1838	1,384	do do	169,548
No. 6	31st December, 1839	1,581	do do	192,971
No. 7	do 1840	1,978	do do	232,560
No. 8	do 1841	2,337	do do	281,849
No. 9	do 1842	2,721	do do	319,792
No. 10	do 1843	2,912	do do	355,320
No. 11	do 1844	3,153	do do	395,550
No. 12	do 1845	3,426	do do	432,844
No. 13	do 1846	3,637	do do	456,410
No. 14	do 1847	3,825	do do	462,632
No. 15	do 1848	4,109	do do	507,469
No. 16	do 1849	4,321	do do	480,623
No. 17	do 1850	4,547	do do	511,230
No. 18	do 1851	4,704	do do	520,401
No. 19	do 1852	4,875	do do	544,604
No. 20	do 1853	5,023	do do	550,631
No. 21	do 1854	5,178	do do	551,110
No. 22	do 1855	5,124	do do	535,905
No. 23	do 1856	5,245	31st December	560,134
No. 24	do 1857	5,337	Year ended 31st December	776,473
No. 25	do 1858	5,408	do do	803,610
No. 26	do 1859	5,496	do do	806,510
No. 27	do 1860	5,632	do do	814,000
No. 28	do 1861	5,830	do do	803,364

No. and Date of Report.	No. of Schools in operation.	No. of children on the Rolls for :
No. 29—31st December, 1862.....	6,010	Half-year ending 30th September 812,527
No. 30—do 1863.....	6,163	do do 840,569
No. 31—do 1864.....	6,263	do do 870,461
No. 32—do 1865.....	6,372	do do 922,684
No. 33—do 1866.....	6,453	do do 910,819
No. 34—do 1867.....	6,520	do do 913,198
No. 35—do 1868.....	6,586	do do 918,344
No. 36—do 1869.....	6,707	do do 941,289
No. 37—do 1870.....	6,806	do do 950,999
No. 38—do 1871.....	6,914	do do 972,906
No. 39—do 1872.....	7,050	do do 960,434
No. 40—do 1873.....	7,160	do do 974,696
No. 41—do 1874.....	7,257	do do 1,006,511
No. 42—do 1875.....	7,297	do do 1,011,799

“From the table it appears that of 1,007,671 pupils attending National Schools in 1875 :

798,024 or 79.2 per cent. were Roman Catholic.
 111,132 or 11. per cent. were Presbyterian.
 89,907 or 9. per cent. were Episcopal.
 8,608 or .8 per cent. were others.

“We had in our service at the end of the year 1875, 7,067 Principal Teachers, 3,037 Assistants, and 177 Junior Literary and Industrial Assistants, making in the whole, 10,281, of whom 3,487 were trained in our Normal establishment. We also had in our service at the same period, 325 Work mistresses.”

“The total amount at the disposal of the Commissioners, in augmentation of the fixed grants, consisted, under the new arrangement of :—

- (a). £65,000, increase to class salaries.
 - (b). £60,000, for results, payments.
 - (c). £32,055, results, payments from contributory Unions.
 - (d). £32,055, the corresponding amount to ditto from the Imperial Exchequer.
- Total £189,110.

“The total income of the teaching staff from all sources for the year, appears to have been £571,648 18s. 11d.—viz., £486,788 14s. 2d. from Board and rates, and £84,860 4s. 9d. for payment by pupils (including apportionment of model school fees) and subscriptions, &c., 19.7 per cent. of this sum was locally provided, and 80.3 per cent. was derived from the funds placed at our disposal by the State.

EDUCATIONAL DEPOSITORY FOR SCHOOL BOOKS AND APPARATUS.

“The amount received for books, school requisites, and apparatus sold to National schools in the year 1875–6, was £28,621 18s. The number of orders was 15,176; and the average amount of each order, £1 17s 8½d.

“By direction of the Lords of Her Majesty’s Treasury, the commission of 20 per cent. which was allowed on the purchase of books and other requisites by National Teachers was reduced to 10 per cent. from 1st July, 1875, and altogether discontinued from the 31st March, 1876.

“The value of requisites and appliances granted as Free Stock to the National Schools in 1875–6, was £1,404 3s. 8d. The number of grants was 386. Exchequer extra receipts payable to H. M. Exchequer. Amount received for books, school requisites, and apparatus sold to the National Schools in Ireland, at reduced prices, during the twelve months ending 31st March, 1876, £28,621 18s. 6d. Do miscellaneous, £3,818 9s. 10d.

“Books and School Apparatus Department :

“ 1. Book Porters’ wages.....	£ 599 5 0
“ 2. Contractors for paper, printing, and binding of National School books; and for maps, apparatus, and school requisites purchased from publishers..	39,958 12 5.”
	£40,557 17 5

STATE OF EDUCATION IN SCOTLAND.

I extract the following particulars of the present state of Elementary Education in Scotland, from the last report of the Scottish Board for 1875 :—

“ When the census was taken in 1871, there were in the landward parishes and districts of Scotland, 368,238, and in the burghs, 261,016, making together 629,254 children between the ages of five and thirteen. In 1873, when the school boards reported to us, we estimated from the information supplied by them that there were 511,601 scholars on the rolls of all the schools in the country.

“ We have now been able to dispose of the schemes proposed by the School Boards of 825 parishes and burghs—769 of the former, and 56 of the latter,—with a total number of children of school age (5 to 13 years), of 587,378, of which 329,486 belong to the parishes, and 257,892 to the burghs.

“ On 31st December, 1875, there were 2,329 public schools under School Boards in Scotland, with 307,955 scholars on the roll, and an average attendance of 233,130, taught by 3,418 principal teachers and assistants, with 3,024 pupil teachers and monitors, 1,164 sewing mistresses, and 110 visiting teachers.

“ There were 165 evening schools, having 12,343 scholars on the roll, and an average attendance of 9,803. In these schools there were 203 principal teachers, and 103 assistants, 65 pupil teachers and monitors, 4 sewing mistresses, and two visiting teachers. The fees amounted to £2,666 9s. 5½d., the grants under this code to £1,904 1s. 10d., and the salaries to £3,631 9s. 7½d.

“ The ratable value of lands and heritages, according to the Valuation Roll for 1875-6, is £17,340,467 10s. 11d. The assessment required for the year by the School Boards, amounts to £285,764 12s. 3½d. The school fees amount to £135,868 4s. 2¾d.; the annual grants under the code to £131,053 7s. 9½d.; and the additional grants under the 67th section of the Education Act, to £1,526 5s. 4d. The total salaries and emoluments paid during the year 1875, amounted to £377,603 2s. 4½d.

“ The School Boards report that during last year, in carrying out the compulsory clauses of the Education Act, 7,499 parents have been summoned to appear before their respective Boards, and that notices have been sent to 421 employers; that 279 parents and one employer have been prosecuted; that 197 of the former were convicted, 135 of whom were fined and 20 imprisoned. That the fines and expenses amounted to £130 4s. 8d., and that the cost of prosecutions, less the amount of fines and expenses recovered, was £466 18s. 10d. The parents of 2,974 children applied to parochial Boards, under the 69th section of the Education Act, for assistance to educate their children; but it appears that the applications on behalf of 1,150 of these were refused. The number of children who during the year have been brought into school by the operation of the compulsory clauses, is estimated at 28,054. Of these children, 15,516 belong to towns, and 12,538 to rural parishes.”

THE EXHIBITS OF THE AUSTRALIAN COLONIES.

15. AUSTRALIA.—The general exhibit from the Australian Colonies excited both surprise and pleasure. It was very comprehensive and well arranged. The great product of these Colonies, as indicated by gilt pyramids in their respective courts, was gold. Wool and grain of various kinds formed the next chief staples. An American writer thus sums up the whole exhibit. He says :—

"The Australian exhibits are chiefly specimens of raw products, views of scenery and flowers, and samples of soils and minerals. New South Wales has erected in the centre of its space a large trophy, containing specimens of its coals in blocks; and Queensland exhibits photographs and drawings of scenery, specimens of tin, copper, sugar, arrowroot, wood, oils, timbers, silks, natural history, and botanical preparations. There are also five tons of copper, and twelve tons of tin, in various forms, besides furs, leather, wine, spirits, fine wools, and specimens of twenty-two different woods."

The following is a brief statistical view of the extent, population, and products of various Australian Colonies, taken from the latest available sources:—

COLONY.	Area, square Miles.	Population.	Miles of railroad.	Revenue.	Exports.	Gold products since 1851.
Victoria	88,198	820,000	985	£4,400,906	£15,441,109	\$875,508,781
New South Wales	323,437	584,278	508	4,213,286	12,245,603	157,437,896
South Australia	914,730	210,699	240	1,143,100	4,442,100	40,297
Queensland	678,600	168,700	600	1,220,634	4,042,513	33,843,400
West Australia	978,000	30,000	.....	154,823	398,901	—
New Zealand	200,000	299,514	1,010	3,063,811	5,251,269	153,992,660
Tasmania	26,215	104,217	165	327,925	925,325	—

1. VICTORIA.—The leading colony of Victoria had an extensive exhibit of native products in their natural and manufactured state. By means, too, of a large collection of photographs and other illustrations, a very good idea of the scenery and other physical characteristics of the country was obtained. She had, however, no school exhibit; although by the aid of about thirty photographs, the character and style of the school-houses erected in various parts of the country were seen, and incidentally its facilities for education. The valuable special reports relating to Victoria, prepared and distributed at the exhibition, were of much interest to the intelligent visitor.

2. NEW SOUTH WALES had a very large and interesting exhibit, representing her products of gold; her inexhaustible mines of coal, besides iron, lead, tin, copper, and other minerals. Her collection of native wines, included about one hundred varieties, the extensive exhibits of wool, blankets, shawls, leather and other products, excited a good deal of interest and attention. The large photographs of Sydney and its harbour, were unequalled in the exhibition.

To the able and energetic Executive Commissioner, Augustus Morris, Esquire, visitors to the New South Wales Court were greatly indebted for valuable information in regard to the varied products and extensive exhibit of that country at Philadelphia. Mr. Morris was also greatly aided in his labours by his assistants and by the extensive distribution of the interesting and useful special reports which were prepared in the colony for that purpose. His visit to these provinces was with a view to promote trade between New South Wales and Canada, and this he sought assiduously to promote. He expressed himself as greatly pleased with our gratifying progress, as indicated by our educational exhibit. His views on this subject will be found on page 25 of this report.

3. SOUTH AUSTRALIA had also a large collection of photographs of her scenery and farm life, besides specimens of woods, grain, wool, silk, minerals. There are in addition, various curious ornaments, such as vases, cups, &c., manufactured in the colony out of ostrich and emu eggs. A great variety of stuffed birds and animals peculiar to the country were also exhibited. The interest of visitors in her extensive and admirable display was greatly increased by means of the full and satisfactory information given on the very valuable work on the "History, Resources, and Productions of South Australia, edited by Wm. Hareus, Esq., J. P." which was distributed. This book was beautifully printed, and contained sixty-six full page illustrations of the country, taken from photographs on the spot. It was published by Messrs. Sampson, Low & Co., London.

4. QUEENSLAND.—The exhibit from this country was a repetition to a large extent of that from the other Australian Colonies. It was well arranged, and included coloured photographs of scenery, farm life, &c., specimens of mineral products, woods, oils, sugars, wine, and tobacco.

5. OTHER AUSTRALIAN COLONIES.—West Australia, a penal colony had no exhibit. Tasmania and New Zealand vied with each other and with the other colonies, to present a creditable exhibit. None of them, however, attempted an educational display.

STATE OF EDUCATION IN THE AUSTRALIAN COLONIES.

From the educational reports received at the Department from the Australian Colonies for 1875, I have had the following information compiled:

1. "VICTORIA.—*Primary Education*.—Number of Schools:—Public, 1,111; private, 610; total, 1,721.

"Number of Pupils:—Public, 216,144; private, 22,448; total, 238,592; viz.: 122,060 boys, and 116,532 girls.

"Number of Teachers:—Public, 3,715; private, 1,509; 5,224 total.

"*Secondary Education*.—(Colleges, Grammar Schools, etc.)—Number of schools, 5 (all connected with churches); number of pupils, 1,024; number of teachers, 50; amount received from government for building, £32,498.

"*Superior Education*.—University of Melbourne:—Number of students in 1874, 177; number of professors not given; total expenditure in 1874, £16,393.

"*Industrial and Art Institutions*.—The School of Painting and Design:—Number of students in 1874, 196, viz.: 75 males and 139 females; the Industrial and Technological Museum: Number of students in 1874, 120, viz.: 110 males and 10 females; the National Museum: number of visitors in 1874, 100,514.

"*Libraries*.—The Melbourne Public Library:—Number of volumes in 1874, 83,231; number of visitors in 1874, 239,188. The Supreme Court Library:—Number of volumes in 1874, 11,365. Miscellaneous Libraries:—Number, 130; number of volumes in 1874, 174,103.

2. "NEW SOUTH WALES.—Public schools, 461; provisional schools, 262; half-time schools, 116; denominational schools, 191; total number of schools, 1,030.

"Pupils in public schools, 58,811; in provisional schools, 8,776; in half-time schools, 2,350; in denominational schools, 38,218; total number of pupils, 104,456.

"Proportion of pupils in average attendance to the average number enrolled:—In public schools, 64.8 per cent.; in certified denominational schools, 64 per cent.; in all schools, 64.5.

"Amount of school fees:—In public schools, £33,985 12s. 6½d.; in provisional schools, £3,860 14s. 4½d.; in half-time schools, £677 9s. 9¾d.; in denominational schools, £17,722 15s. 11½d.; total, £56,246 12s. 8d. Teachers:—Principal teachers, 975; assistant teachers, 220; pupil teachers, 309; total number of teachers, 1,504.

"*Annual School Revenue*.—Balance from 1874, £873 8s. 11d.; vote for Public Instruction, £180,000; church and school estates revenue, £2,186, 7s. 9d.; total, £183,059, 16s. 8d.

"*Annual School Expenditure*.—Salaries of teachers, £94,573; building and repairs, £16,593; general management, £7,682; inspection, £7,525; training, £3,457; books, printing and stationery, £3,136; total, £132,966.

3. "SOUTH AUSTRALIA.—Number of schools under control of the board, 320; number of scholars on the rolls during one month, 17,426; average attendance for one month, 13,774; average number on the rolls at each school, 54; average attendance at each school, 43; percentage of attendance to the number on the rolls during one month only, 79; number of licensed teachers:—male, 216; females, 97; total, 313; model school:—average roll number of scholars for the year, 739; average daily attendance, 586; annual receipts, £33,336; annual expenditure, £31,477.

4. "TASMANIA.—Number of schools, 154; number of scholars on rolls during the year, 12,271; average number of scholars on rolls during the year at each school, 79.68; average number on the rolls from month to month at each school, 52.89; average attendance at each school, 37.03; percentage of attendance to the average number on rolls, 70.02; number of teachers and assistants, 154; annual income, £13,551; annual expenditure, £12,823.

5. "QUEENSLAND.—Number of schools in operation, 231; number of new schools opened, 35; number of schools closed in previous year, 8; number of applications dealt with for new schools or additions, 54; number of new vested schools completed, 26; increase in number of schools in operation, 27; number of vested schools in operation, 157; number of non-vested schools in operation, 28; number of provisional schools in operation, 45.

"*Teachers and Pupils*.—Number of teachers, including pupil teachers, 674; aggregate attendance of scholars, 33,643; average attendance, 16,887.

"*School Finances*.—Parliamentary vote for education, £87,200 8s. 7d.; local subscriptions toward school buildings, £2,184 1s. 7d.; salaries of teachers, £55,816 19s. 4d.; buildings, furniture, and repairs, £19,880 5s. 2d.; total expenditure out of parliamentary vote, £81,135 1s. 8d.; total expenditure out of local subscriptions, £2,084 13s. 1d.

6. "NEW ZEALAND.—Number of school districts, 108; number of schools, 140; highest attendance on the roll, 8,284; average attendance, 4,929; number of teachers, 178; expenditure for educational purposes, £20,531; annual average cost per pupil, £2 10s.; total value of school buildings, £6,000; Auckland College and Grammar School, number of teachers, 7; number of students, 164.

STATE OF EDUCATION IN THE EAST INDIES.

(From *Martin's Statistician's Year-Book for 1876*.)

16. "EAST INDIES.—Efforts for spreading education among the population of India have been made since 1848, in which year the Lieutenant-Governor of Agra brought forward a scheme for giving a schoolmaster to every village of at least a hundred families.

"After three years' discussion, the Court of Directors of the East India Company accepted the groundwork of the plan, and orders were issued directing that a good vernacular school should be established for every 'circle' of villages called 'Hulkabandee' and that the teacher should be paid from a cess of 2 per cent. on the land revenue.

"The following table gives the number of schools and colleges belonging to, aided, or maintained by Government in British India, with the average number of pupils attending them, the amount expended by Government, and the gross expenditure on account of instruction in each of the five years, 1867 to 1871:—

Years ended.	Number of Educational Institutions.	Average attendance of Pupils.	Amount expended by Government.	Total expenditure from all sources.
1867	20,683	658,834	£461,378	£755,518
1868	21,549	675,392	537,604	896,833
1869	23,300	758,357	591,652	1,009,731
1870	24,274	789,125	637,463	1,070,685
1871	22,147	799,622	649,724	1,019,418

"In the North Western Provinces and Madras the foundation has been laid of a national system of education ; while the general position for the whole of India is, that the Government has succeeded in establishing a system of public instruction for the upper and middle classes, but has, as yet, made little or no impression upon the great body of the population.

STATE OF EDUCATION IN HAWAII OR THE SANDWICH ISLANDS.

17. SANDWICH ISLANDS, OR HAWAII.—The rapid emergence of these islands out of heathen darkness into Christian light and civilization has been remarkable. The results, as shown at Philadelphia, were, on the whole, most gratifying, particularly as regards the progress of education in the Islands.

The School Exhibit at the Centennial was confined to a number of good photographs of native teachers, pupils and school buildings in the islands. There were besides specimens of a number of text books printed in the 'Kanaka' language—some of them compilations or translations of American school books. The whole exhibit, though small, was highly interesting, coming as it did from islands which were, not so many years ago, dark and unenlightened."

From reports relating to education in Hawaii, which were distributed at the Exhibition, we learn the following facts :—

"The schools in this kingdom are chiefly supported by the Government, which expends annually about \$40,000 in sustaining them. The total expenditure is about \$75,000. Every district is provided with schools and teachers, where all who choose can receive instruction in the common branches, and it is a noteworthy fact, that a Hawaiian who cannot, at least, read and write, is rarely to be found. Besides the common schools, there are higher seminaries and boarding schools, in which both the vernacular and English languages are taught. There are 243 schools of all grades, and 7,755 scholars in the kingdom. Honolulu is well provided with select English schools or seminaries (of which there are seventeen), where natives and foreigners can obtain a good academical education."

AMERICAN STATES WHICH HAD NO SCHOOL EXHIBIT AT THE CENTENNIAL.

18. AMERICAN STATES.—Of the thirty-seven States of the American Union, only twelve or thirteen (about one-third), made a creditable educational exhibit. Seven had a mere representation, respectable, but very small in extent or variety ; while seventeen States had no educational exhibit whatever. To these may be added the eleven Territories.

The educational absence of the "Empire," or leading State of the Union (New York), was quite conspicuous, and was much noticed. The other States which took no educational

part in the exhibition, were Vermont, Virginia (except Hampton Institute and Fisk University, Tennessee, both for coloured people), West Virginia, Minnesota, California, Delaware, North and South Carolina, Georgia, Louisiana (except New Orleans), Mississippi, Alabama, Kansas, Arkansas, Nebraska, Nevada, and Oregon.

The educational statistics of these States I have compiled from the latest available report as follows :—

STATE.	Date.	No. of School age.	No. of Pupils attending School.	No. of Teachers.	School Income.	Value of Sites.
					\$	\$
New York.....	1876	1,585,601	1,067,199	30,209	3,132,725	31,017,924
Vermont.....	1873-4	89,541	78,130	4,406	516,222	1,339,864
Virginia.....	1876	482,789	199,856	4,620	1,069,679	851,730
West Virginia.....	1873-4	179,897	115,300	3,461	753,477	1,605,627
Minnesota.....	1875	218,741	116,671	2,399	1,576,081	2,805,156
California.....	1874-5	171,563	130,930	2,693	3,390,359	5,068,678
Delaware.....	"	"	19,881	439	192,735	"
N. Carolina.....	"	348,603	146,737	2,690	408,794	"
S. Carolina.....	"	230,264	110,416	2,855	489,542	313,289
Georgia.....	1875	394,037	156,394	"	435,319	"
Louisiana.....	1874-5	274,688	74,846	1,557	609,665	896,100
Mississippi.....	"	318,459	168,217	4,968	1,110,248	1,000,000
Alabama.....	"	406,270	147,310	3,939	553,014	"
Kansas.....	1876	212,977	147,224	5,576	1,165,638	4,167,948
Arkansas.....	1874-5	184,692	79,878	2,322	789,536	355,000
Nebraska.....	"	80,122	55,423	3,091	292,475	1,848,293
Nevada.....	"	6,315	4,811	115	146,181	121,011
Oregon.....	"	44,661	21,518	953	86,673	350,000

PART XIV.—SPECIAL EDUCATIONAL EXHIBITS AT THE CENTENNIAL.

I have hitherto referred only to the school exhibits of various countries and states, as they were presented at the Centennial. Viewed in another light, however, these same exhibits, classified under the heads of Scientific, Technical, and Industrial, possessed features of special interest which were full of instruction to the educational student. The grouping of these exhibits was undertaken by S. R. Thompson, Esq.,* a gentleman of intelligence and experience. I have availed myself of his sketch, as it appeared in the *Pennsylvania School Journal*, as follows :—

"The precise field of labour appropriately belonging to each of these classes of schools is not clearly defined. At the one extreme we have schools devoted to teaching pure science in its most abstract form, without any direct reference to its application to the industries or the arts of life; at the other extreme are the trade schools, in which young people are taught the methods and processes of some art or trade by which they may obtain a livelihood. In the purely scientific school the knowing faculties are principally cultivated, in the trade school the activities are more largely called into action.

"The technical schools, to some extent, occupy a medium ground between these extremes, and either teach the sciences with special reference to their application to the development and conduct of the great productive and constructive industries, or some form of productive or creative activity is used as a means of fixing upon the mind of the pupil the principles of science which he is learning from books or from the living teacher.

"To study the school displays at the exhibition with profit, the peculiarities of these different schools must be borne in mind; since in each case the student's work will naturally vary with the kind of school. For example, in the school of pure science, the written

* The *Pennsylvania School Journal* for October says :—"This article was written by a gentleman formerly of Pennsylvania, but for the last eight or ten years occupying a high educational position in another state."

examination paper, if fairly done, may be accepted as an indication of the kind of work done; but in an industrial or trade school, a school for mechanical engineers or for machinists, an examination paper, no matter how well written, would hardly be accepted as the sole indication of the kind of school work done. In this case we look for examples of work done—work in which the hand is concerned as well as the mind.

"To show the results of the study of science by the pupils, the usual resort has been to examination papers, or to the display of theses and technical papers on scientific subjects. In some cases original investigations of considerable ingenuity and value, made by students, are shown. The exhibition of drawings of all kinds, by these schools, is more nearly universal than any other single thing.

I. TECHNICAL SCHOOLS OF THE UNITED STATES.

"The Chandler Scientific School and the Thayer School of Civil Engineering of Dartmouth College, N. H., have a large collection of drawings—chiefly instrumental—of buildings and bridges; also, class drawings in descriptive geometry, and models of a bridge, and passage ways through embankments.

"Purdue University, of Lafayette, Indiana, shows a series of fifty consecutive lessons in geometrical projection and elementary perspective done by students, and a glass case containing a large number of chemical compounds made by students.

"The Cooper Union (N.Y.) School of Design for Women, has a fine series of drawings and examination papers.

"Maine State College has a series of drawings designed especially to show the course of instruction. The series includes line, machine and topographical drawing, and photographs by students who are taught this art in the laboratory.

"The Missouri School of Mines exhibits a collection of excellent drawings in descriptive Geometry and in Shades and Shadows.

"Lafayette College, Easton, Pa., exhibits a series of elementary drawings, plane problems, elementary projections per topography, machine drawing, coloured topography, drawing for stone cutting, perspective drawing, and in shades and shadows. The work done by the different classes in each year of the course is clearly distinguished in this display.

"Lehigh University, Pennsylvania, shows machine and topographical drawing; also, plats of compass surveys, house plans, and plans for work in landscape gardening, variegated pavements, ornamental stone work, etc.

"The Girls' High and Normal Schools of Philadelphia exhibit some excellent industrial designs, and a number of other drawings.

"The Hampton Normal and Agricultural Institute of Virginia, has a very interesting exhibit, valuable not so much from the character of the exhibit itself, as from what it suggests concerning the peculiar character of the school. This institution was established for the purpose of instilling habits of intelligent industry among the coloured people at the South. To this end, the effort is to educate teachers for coloured schools who shall, while acquiring that book knowledge which will enable them to teach school, get such habits of industry, and such knowledge of industrial arts, as will enable them to help their coloured friends to organize and improve the various industrial pursuits in which they are engaged.

"The Department of Mechanical Engineering, Cornell University, exhibits an amateur engine lathe, a steam engine, magneto-electric machine of great power, and a number of other things designed and built in the University machine shop, and nearly all the work done by students in mechanical engineering. This exhibit is not large, but all the articles shown are excellent of their kind.

"The University of Pennsylvania exhibits relief maps, models of gearing, arches, passage-ways, bridges and self-supporting roofs. Also, drawings of a locomotive.

"The University of Wisconsin exhibits school papers, water-colour drawings, photographs of blackboard drawings, etc.

"The Polytechnic School of the University of Michigan, has a considerable display, but notes taken on the spot were lost, and the only thing recalled is a list of over one hundred pharmaceutical preparations, all made by the students in the College of Pharmacy.

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"The Deaf, Dumb, and Blind School at Flint, Michigan, exhibits a considerable collection of articles made by the blind students, such as boots, bedsteads, baskets, brushes, knit-work, &c.

"A most note-worthy part of the Michigan exhibit is a series of very fine microscopical drawings, by Miss Louisa M. Reece, a student in the scientific department of the University.

"The Illinois Industrial University, located at Champaign, has a large and excellent exhibit by various schools. The school of chemistry shows over one hundred and fifty chemical products made by the students as part of their course in this department; that of architecture, a model of a "half-space" stairs; that of civil engineering, a patent drawing board. The school of mechanical engineering exhibits a collection of finished machines and models of mechanical movements largely made by students. The various articles are as follows: Water crank substitute, cut-off valve gear, Bachm's link coupling, cam movement, link work, ratchet windlass, pin and slit movement gear, link motion valve, intermittent gearing, chain gearing, hyperboloidal gear, odontograph, sliding curve, epicycloidal coupling, sun and planet combination, treadle movement, shock models Nos. 1, 2, 3 and 4, eccentric gear and crank. The various departments show drawings of parts of machines and tools; lists of experiments with drawings of implements used and results obtained; vacation journals with drawings of works visited and studied; problems in mechanical construction; theses on water wheels with illustrative drawings; experiments in strength of materials with calculations and drawings; experiments on the resistance of materials; experiments in hydraulics; experiments in photography; experiments in centrifugal force; experiments on extension of steam; experiments with curved floats; specimens of railroad notes, of railroad books, lettering, thesis on highway bridge at Peoria, analysis of a bridge, elevations and designs for mantels, doorways, etc., both in line and in colour; specimens of modelling in plaster and clay, frescoing, etc.

"The Pennsylvania Institute for the Blind makes an interesting display of appliances used in teaching the blind, and a large amount of products of the industry of the blind students in the school, consisting of bead-work, brushes, knit-work, baskets, brooms, mats, chair-bottoms, rugs, carpets, &c. The multiplicity and excellence of the kind of work done by the blind in this and kindred schools, is a striking illustration of the extent to which good instruction can enable a person to escape the consequences of the deprivation of sight.

"The Massachusetts Institute of Technology in the Department of Physics, exhibits a case containing about fifty specimens of students' work, including novelties, inventions, published memoirs, and results of a series of laboratory experiments in mechanics, sound, light, heat, and electricity; models of bridges designed, constructed, tested and reported upon by students; a light and inexpressive plane table; and theses of graduates. The department of Chemistry exhibits theses for 1876; that of architecture, seventy-seven original designs and copies in frames and portfolios, with theses of graduates; that of Civil Engineering, seventy-four drawings in portfolios of railroad surveys, topography, stone cutting, bridge and roof construction and original designs for structures; that of mechanical engineering, four hundred and thirteen drawings in frames, illustrating boilers, engines, pumps, motors, tools, wheels, &c., as well as theses of graduates with drawings.

"The Worcester Free Institute of Massachusetts exhibits models used in teaching drawing, and made by students for sale; drawings in mechanical engineering; 22 bound volumes of examination papers made by class of 1876; free-hand drawings, shading and mechanical drawing; apparatus for illustrating principles of mechanics and 20 photographs of its combinations; speed lathe to measure gears; models to illustrate cam movements; drawing stand; model of link and valve motion; work in metal and in wood, 100 specimens; maps and drawings of surveys; civil engineering practice, fifty specimens; industrial designs for oil cloths, prints, carpets, book covers, wall paper and borders, and specimens of carpets manufactured from designs by students.

"The Philadelphia School of Design for Women, makes an excellent display of paintings, lithographing, wood engraving, and drawings of various kinds. There are some attractive designs by the pupils in the exhibit. It is stated that a balmoreal factory in Philadelphia, is now using designs furnished by a student of this institution.

"One of the most interesting and striking exhibits is that of the Pennsylvania Soldiers' Orphan Schools, in the Pennsylvania Educational Building. These schools have been kept up for a number of years at an aggregate expense of nearly five millions of dollars. In them thousands of boys and girls, orphaned by the great rebellion, have received a good education, and what is sometimes quite as valuable, a good trade. Almost every conceivable kind of labour is exemplified in this exhibit. Drawing, painting, fancy work, hair work, upholstering, plain and ornamental sewing, working-button holes, wax work, crocheting by girls, and carpenter, tin work, shoe making, cigar making, painting, etc., by the boys. This display coming from some twenty different schools, is necessarily somewhat heterogeneous, but it speaks volumes for the skill and industry of the orphans, and the large-hearted benevolence of the old Keystone State.

II. VARIOUS FOREIGN SCHOOLS.

"The Agricultural Colonies of the Beneficence Society of the Netherlands, is an organization designed to ameliorate the condition of the working classes, by procuring them permanent employment, as much as possible according to their individual capabilities, and includes within its scope instruction in books and in various manual arts. Articles made at the factories or schools, and exhibited in Philadelphia, are, in part, as follows: mats, carpets, cloth, sets of tresses, wicker-work, rope, model of house and barn, a portfolio of drawings, one of penmanship, etc. It will be understood that the chief design of these 'colonies' is to convert a non-productive into a productive class.

"The Blind Asylum at Amsterdam exhibits a large collection of apparatus for teaching the blind, some of it made by blind pupils in the school; also, baskets, knit goods, and other articles of blind pupils' workmanship.

"The Professional School of Amsterdam is really a trade school which seeks to teach trades in connection with the elements of a book education. The last catalogue shows the names of one hundred and twenty students, classified in the following trades: eighty-two carpenters, twenty-two smiths, five cabinet-makers, six sculptors, four turners, and one house painter. This school exhibits drawings of machines and parts of machines, tools, stairways, architectural details, both free-hand and instrumental. The drawings are partly coloured and all meritorious.

"The Artisan's School at Rotterdam is an Institution in which boys from twelve to fifteen are furnished with a respectable education, and at the same time to be clever artisans. Here is found a large collection of drawings, showing the whole course of instruction in graphics, drawings of machines, movements, architectural details, design and ornamentation. There is also a collection of parts of machines made by students as a part of their regular work. These were evidently done by learners, and not finished up by their teachers. The same may be said in reference to the models of stairways, illustrations in joining wood, doors, sash, etc., designed to show how these trades are taught.

"In the Swiss Department is seen the exhibit of the Freiwillige Fortbildungs Schule, where we find models of stairs, self-supporting roofs, the framework of a church tower, several bridge models, models of archways and passages, in plaster. A large collection of drawings of machinery, architectural details, some specimens of design and ornamentation, and examples of modelling in plaster.

"In the display made by the Imperial Technical School of Moscow, in the Russian Department, we have a detailed exhibition of the different steps taken by a pupil who is learning to be a machinist and mechanical engineer, and each step in the process is illustrated by a piece of work done by a pupil in the school. Take for illustration the art of finishing metal forms with a file. Here we have different steps to the number of forty-five, each one a little more difficult than the preceding, and each one illustrated by a piece of work done by a student; 1. The chipping of the surface to be filed. 2. Filing their edges according to marking lines. 3. Filing planes. 4. Filing of two parallel planes. 5. Filing of two rectangular planes. 6. Filing of two acute angled planes, etc. In the same manner the methods of learning the various operations connected with boring, turning, drilling, etc., are all minutely and systematically illustrated."

"The South Kensington Museum has a display, in the Art Gallery, worthy of attention. Only a part of this display is the work of students. A series of illustrations show-

ing the various steps of the process of etching on copper is interesting. The exhibits include: Decorations on pottery, designed by a teacher, and executed by students; etching by students; a centre cup, designed by students; flower paintings; shades intended to teach the method of treating natural objects ornamentally; drawings from nature, with reference to design; linear and prospective drawings; elevations and plans of buildings; also, elementary design and historical design.

"The Royal School of Art and Needlework in the British section is an Institution founded under the patronage of Queen Victoria, and intended to teach ladies the finest kinds of needlework. None but ladies of good—that is gentle—birth are admitted to this highly aristocratic institution, where they are taught to be especially skilful in restoring and repairing the ancient tapestry which the lapse of time has injured. The display of work by this school is unique and decidedly interesting.

"The School of Practical Science of Toronto shows ornamental drawing for upholstery; bridges, wheel-work, elevations, and plans of buildings and details of machinery. These drawings are said to be by pupils from seventeen to thirty years of age, and are very fine.

"One thing is obvious, that our industrial schools are generally working in the right direction, and gradually freeing themselves from the chains of traditional scholasticism, which have so long retarded their true development. If any one wishes evidence of this let him consider what fractional part of the present industrial school display could have been found in the United States ten years ago.

III. THE CENTENNIAL BOOK OR LIBRARY EXHIBITS.

One of the most noticeable and most artistically arranged exhibits at the Centennial was the American book display in the main building (see engraving). So also were the French and German book pavilions—(To the latter I have already referred on page 166). The *Publishers' Weekly* says: "Of individual exhibitors there were probably no less than 600 in books and 300 in stationery. . . . Four of the book exhibits were collective—that is, made under the auspices of the trade. Mr. Warren, in the *American Library*, says of the display:—

"The most extensive exhibit was that found in the Government Building, where the Bureau of Education had the large collection of catalogues and reports which were recently accumulated by General Eaton in the course of preparing his valuable work on "Public Libraries in America." Noticeable among these were the nine volumes which composed the catalogue of the National Library.

"In the same building the United States Patent Office displayed a collection of five hundred well-bound volumes of its reports, and other publications. The Superintendent of Documents sent from Washington a full set of the publications issued during the Forty-third Congress. The other departments and bureaux exhibited sets of their reports.

"In the Main Building the few library exhibits proper were confined chiefly to the displays of the State educational departments. In the Rhode Island exhibit there was a drawing of the new and beautiful Brown University library building, and in the Massachusetts exhibit there was a small collection of library catalogues and reports. Notable among these was the contribution from the Boston Public Library. The Worcester Public Library had prepared a special report for the Centennial. Williams and some other colleges had also prepared bibliographies of works by their professors. The exhibit of the American Book Trade Association, at the south-eastern angle, was full of interest to librarians, who are particularly concerned in it, especially with Mr. J. R. Bartlett's catalogue, in 4 vols., shown in a special case; of John Carter Brow's library, of which only fifty copies were printed; and Mr. Sabin's *Bibliotheca Americana*; also indirectly with the trade-bibliographical publication of the *Publisher's Weekly* and the *American Bookseller*.

"The special attention of librarians was called to the very valuable displays made by the *Cercle de la Librairie*, and by the Messrs. Hachette & Co., in the French section in the Main Building. As a collection of choice authors and editions, it was unsurpassed by

any publisher's display in the whole exhibition, while the different important specialties represented made the display a very fine French library. Thus, *Institut Géographique* exhibited all its geographical, cartographical, and relief publications. M. Gauthier Villars had a full line of works on mathematics, physics, chemistry, and the other practical sciences, etc. The paper, printing, illustrations, and binding were all excellent, and the trade catalogues were models of neatness and convenience.

"In the German Book Pavilion there was found, among other publications, several series of the trade-bibliographical publications of Germany, where current bibliography approaches more nearly to a science than in any other country. (See page 166 of this Report). These were included in the exhibits of the Börsenverein, Hinrichs, Weigel, and Schultz.

"In the Netherland Pavilion there was included Brinckman's series of alphabetical title-lists of Dutch books from 1790 to 1862, and other bibliographical books of Nyhoff, Asher, and Muller.

"England, little represented in books, had nothing special in bibliography in her own exhibition proper. The Education Department of Ontario, however, exhibited a free public school library such as it supplies to the school districts. The Colony of Victoria exhibited a handsome bound set of the catalogues and reports of the great Melbourne Library.

"In the Russian department, librarians were interested in the display of the "Pedagogic Museum," which distributed gratuitously an interesting catalogue describing, among other things, the "publications for the people" by the "Company of General Utility," which is doing in Russia something of the work of our public library system here.

"In the Swedish school-building there was a library of one thousand volumes, suitable for the schools and parishes of that country. A catalogue of this was distributed in the Swedish school-house.

"The Centennial number of the *Publishers' Weekly*, which was also distributed at the Exhibition, described exhibits of books in sixteen other countries, besides those named, but most of these had only a general relation to library interests. This included not only descriptions, with plans and views of these exhibits, but a general map of the Main Building, by means of which librarians could find their way to each part of the building where books were to be seen.

"In the Women's Pavilion there was a small collection of books, written by the women of America.

"The Pennsylvania Bible Society (auxiliary to the America) had a position near Horticultural Hall, for the sale of Bibles, where there were one or two curiosities."

PART XV.—EUROPEAN EDUCATIONAL SYSTEMS AND POLICY.

With a view to afford our people an instructive insight into the educational systems and policy of leading European countries, as viewed from an American standpoint, I have selected the following article on the subject from the recent report of the Superintendent of Public Instruction for the State of Pennsylvania, (Hon. J. P. Wickersham, LL.D. I have abridged it from a chapter in the report, headed "Facts concerning Foreign Educational Systems and Policy." It will be found to be both a valuable and instructive paper.

"The occasion of the Centennial Exposition ought not to be allowed to pass without deriving all possible benefit from it; and that foreign nations can teach us some very useful lessons on the subject of education, will not be denied by any one who has paid the least attention to what some of them were able to show us in that line at Philadelphia. Did other duties permit, it would be a grateful task to describe in full the educational exhibits of the several foreign nations making them, and to draw therefrom such practical inferences as might be of advantage to the interests of education here: but this work would fill a whole volume, and require for its performance months of time. Indeed, never

before could the experience of other nations have been worth so much to us as now, and never before had they so much valuable information to impart. Every civilized nation in the world has made vast progress in educational matters within the last few years, and to-day the school question seems to be everywhere the leading topic of inquiry and discussion among thinking men. The United States must keep herself well informed respecting what is being done in other countries in order to hold her proper place in advance of them.

"There are certain facts concerning the educational systems and policy of other nations made known or suggested by their exhibits in Fairmount Park, so significant and so well calculated to aid us in our future management of school affairs, that to omit some account of them would be to withhold much needed light from our people.

I.—THE ORGANIZATION OF EDUCATIONAL SYSTEMS.

"The political divisions of the nations of Europe are very similar to those of the United States. England has Parishes and Counties; France—Communes, Arrondissements and Departments; Prussia—Communes, Districts or Circles, Regencies and Provinces or Departments; Holland—Communes and Provinces; Switzerland—Communes and Cantons; and so of other European countries. Like in our townships and towns, too, there are everywhere local school boards; but the hand of the central government is always felt in the election of those who are to be intrusted with the management of schools; and it exercises a controlling power in the building of school-houses, the employment of teachers, the selection of text-books, the arrangement of the courses of study, and the work of inspecting the schools. Under the most favourable circumstances, systems of schools are organized in Europe as follows: There is at the seat of government, as Minister of Public Instruction, a broad minded statesman and liberal friend of education; below him, in the larger divisions of his jurisdiction, there are learned school councillors or inspectors, either appointed by him or subject to his authority; and still further down, even in the smallest districts, he selects members of school boards, chooses inspectors, and has a controlling voice in the whole work of education. Such an organization, with officers free from the weakening influence of popular elections, secure in place during good behaviour, united in a common cause, intelligent, skilful, earnest, can effect in a short time marvellous results for the school interests of a nation.

"The Prussian is an example of a strong school organization. There is at Berlin a well constituted Department of Public Instruction, with a Minister at its head. Each of ten Provinces into which the kingdom of Prussia is divided, has a Department of Public Instruction, constituted in a manner quite similar to that at the Capital. This department or council has direct control, subject to the higher authority, of all institutions for secondary education in the Provinces, and of the schools for the education of primary teachers. One section of it called the Provincial School Collegium, has general charge of primary education, and in the performance of this duty examines the statutes and regulations, selects text-books and gives permission for their introduction, after having obtained the approbation of the Ministry at Berlin. The Provinces in Prussia are divided into Regencies, these into Circles, and these again into Communes. The chief civil authority in a Regency is a president, who is assisted by a council. One section of this council has charge of both school and church affairs. It examines and appoints all teachers of elementary and higher schools, superintends the schools, ascertains that the school-houses and churches are duly kept in order, and collects and disburses the funds. The president of the section is called the School Councillor, and as such, he is compelled to visit the schools, and satisfy himself that they are in good condition. He reports yearly to the higher authorities. Next below the School Councillor, is the Inspector of a Circle composed of several Communes; and still further down is the School Committee, generally composed of the clergyman, and two or more leading citizens, with its Local Inspector for each school. The controlling power extending through the whole series of authorities, is that of the Minister at the seat of government. When the word of command is given, departments, councils, inspectors, committees, and teachers, are all forced to obey. It is a civil organization with military discipline and military efficiency.

II.—BUILDING AND FURNISHING SCHOOL HOUSES.

"Two European nations exhibited school-houses at the Exposition—Sweden and Belgium. The Swedish school-house was of the regular size and erected on the grounds; the Belgian was a large model, somewhat less than the regular size, and located in the Belgian department in the Main Building. Both planned by skilled architects, were very complete. The former contained three rooms, one for a school room, and two for the use of the teacher. The school room was sufficiently large, with a high ceiling, well lighted, and well provided with the means of heating and ventilation. The furniture was scarcely equal to the best made in the country, but the room was admirably supplied with apparatus and the other appliances used in teaching. The Belgian model was well arranged, and intended to represent a school room for fifty scholars with furniture and appliances. It is described in the catalogue of the Belgian exhibit, as follows: Six pupils' seats of various sizes designed for primary schools; a platform extending along the wall towards which the scholars face, and on which is placed the teacher's table, an arithmometer, and two movable tables; a black-board the whole length of the platform, fixed against the wall, and above which is placed a map-bearer surmounted with a bust of the king; a book-case and other smaller cases containing apparatus and scientific collections; different other collections, such as pictures for object lessons, weights and measures, &c.; a ventilating stove and apparatus for purifying the air of the room. At the entrance are found two clothes rooms, in which are placed hat and coat racks, umbrella stands and wash basins. A gynnasium containing the prescribed apparatus for teaching gymnastics in the primary schools is attached to the school room.

"In Sweden," so says the Swedish Bureau of National Education, "the school law prescribes, that every school-house shall be constructed in keeping with these requirements. The school rooms shall be sufficient in number and spaciousness, light, cheerful, lofty, provided with fire-places, and generally arranged with strict regard to the health of the scholars and necessary conveniences of instruction."

"In 1874, the Government of Belgium, with the advice of the Central Commission of primary instruction and the Superior Council of hygiene, revised the programme relative to the construction and furniture of school-houses. The result was the adoption of the plans represented by the model above spoken of, and its contents. They were agreed upon only after the Government had availed itself of all the knowledge and skill in relation to the subject which it was practicable to obtain.

"In virtue of this policy, the school-houses of Sweden will soon be, if they are not now, in plan and equipment, like the one exhibited at Philadelphia; and those of Belgium will, within a few years, be erected, arranged and provided with apparatus and appliances, in accordance with the admirable plan adopted by the Government.

" III.—TEACHERS AND THEIR PREPARATION.

"As a rule, teaching in Europe is a permanent business. Preparation is made for it in the same way that preparation is made in this country for a profession or a trade. A young man who chooses to become a teacher generally expects to remain a teacher for life. The schools are kept open for terms of from eight to ten months in the year; and when a teacher obtains a situation, he goes to work, knowing that no local school board, subject to the whims or prejudices of a neighbourhood, can disturb him in his place, and that he cannot be easily dismissed by any authority as long as he performs his duty faithfully. Teachers are very seldom changed, not more frequently perhaps than physicians and clergymen make changes in this country. The salaries paid teachers are not high, not higher than with us; but every teacher is sure of a pension, should he become old or wear himself out in the service.

"Teachers in all schools, both public and private, must possess a certificate of competency or a license to teach. The examinations are conducted mainly by inspectors or superintendents of schools; but it does not appear that they examine any who have not previously made special preparation for the work of teaching, either in a teachers' seminary, or as pupil teachers, apprentices under some qualified master. An applicant can obtain no certificate at all, unless both in scholarship and pedagogic knowledge he comes

up to a certain prescribed standard ; but upon obtaining a certificate, he is troubled with no further examinations.

"Dr. Charles Saffray, a learned Frenchman who visited the Centennial Exposition, and carefully studied our school system, thus speaks of the teacher : 'He should be chosen for his merit, proved by diplomas and serious examinations; he should feel sure of preserving his position as long as he remains worthy thereof; his salary should secure him a modest comfort, with the knowledge that after twenty-five years of loyal service, he can count upon an old age not exposed to misery. As long as the United States do not assure to teachers impartiality of nomination and promotion, permanence of functions, and security for the future, they will, too often, have only inferior or mediocre teachers; and in spite of the most flattering programmes, popular instruction will remain, in many districts, quite insufficient.'

"There are in all European countries numerous Normal Schools, teachers' seminaries, and training schools. Some of them are entirely under government control, while others are private institutions, many of which, however, are aided by government funds and subject to inspection by its agents. The aim everywhere seems to be to establish as many Normal Schools as are necessary to supply the demand for teachers. Nowhere is the practice tolerated of employing untrained teachers.

"From the best information obtainable, it appears that Switzerland has 27 public Normal schools or teachers' seminaries; the German Empire, 170; Sweden, 9; Holland, 5; Austria, 66; Italy, 59; France, 92. It should be remarked that in Holland there are very numerous courses of Normal instruction in connection with the elementary and middle-class schools, and many private establishments for the training of teachers, some of them aided by the State. This is true also to a less extent in Sweden. In short, it has come to be recognized as a principle that good schools cannot be had without good teachers, and that to secure good teachers means must be provided for specially preparing them. In the countries of Europe most advanced, it is considered wise policy to make liberal expenditures to establish and support schools for the training of teachers; and the folly of paying out annually millions of dollars to persons professing to teach school who have never studied the principles of teaching as a science, and who have never acquired skill in teaching as an art, would there be considered supreme. Such a practice is certainly not more wise on this side of the water.

"The courses of study at the best Normal Schools in Europe, are very comprehensive and thorough. The following, given as an example, is the course of study at the Pedagogium at Vienna:—

"*Language*.—The German Language and Literature, the French Language, Grammar Exercise in Dictation, Composition and Conversation, Translation and Analysis of the French Classes.

"*Mathematics*.—Arithmetic, Algebra, Geometry, Trigonometry.

"*Natural History*.—Zoology, Botany, Mineralogy, Human Somatology, Morphology, Chrysallography, Geology, Physics, Chemistry, Exercises in Laboratory.

"*Geography and History*.—General and Special Geography, including Map-drawing and Statistical, Physical, Economical and Political Geography, History, General and Special.

"*Art Studies*.—Design, Linear and Artistic, Figure, Ornamental, Architecture, Black-board Drawing. The Study of Forms, Modelling, Geometrical Constructions, Relief Maps, etc.

"*Pedagogy*.—Psychology and Logic. Methodology, or Methods of Instruction, Educational system. History of Pedagogy, Practice of Pedagogy.

"IV.—THE COURSE OF STUDY IN ELEMENTARY SCHOOLS.

"It seems to be the policy in many European countries to provide public educational facilities for children at an age much younger than is the case with us. In France, particularly in Paris, thousands of children are admitted to the Salles d'Asile, or Infant Schools, at the age of two years. The new school board of London are carrying into effect a somewhat similar arrangement. And in Norway, Sweden, Belgium, Spain and other countries, there are in operation a large number of Infant Schools, designed for children of

from three to eight years of age. Kindergartens have been numerous established in Germany, Austria and Switzerland; but they are not anywhere directly under the control of the Government. But in speaking of the course of study in Elementary Schools, I do not propose to take into account schools that admit children under the age of five or six years. Reference is had to that class of schools in the Old World which are supposed to correspond to our country and village schools, and to the primary and secondary departments of our graded systems in towns and cities. This is done in order that a comparison may be made between what is taught abroad and what is taught at home, in the same class of schools.

"Religion, as a branch of learning, is placed at the head of the courses of study in all Europe, except Holland and some of the Swiss Cantons. Included in it are Scripture lessons, Sacred History, and Catechetical Instruction. The lessons in religion are given either by the teacher, under the direction of a clergyman, or at stated times by the clergyman himself.

"Instruction in the elements of sciences, which most concern the people in their employments and ways of living, such as agriculture, horticulture, domestic economy, hygiene, &c., has a prominent place in the course of study provided for elementary schools. The first steps in the natural sciences, in the form of object lessons, are almost universally taught to children of from six to ten years of age. Collections of suitable objects for this kind of instruction are placed by law in the elementary schools in many countries. They consist of productions calculated to interest and instruct children, selected from the mineral, vegetable, and animal kingdoms, and apparatus for exhibiting nature, and illustrating her simple laws.

"Drawing and singing are universally taught in the lower schools of all European countries, educationally the most advanced.

"Reading, writing, arithmetic, geography, grammar, and history, are recognised, in Europe as in America, as the base of all courses of instruction.

"Gymnastics are obligatory in schools of both sexes in Prussia, Saxony, Austria, Belgium, and most of the Swiss Cantons. Suitable rooms are generally provided and fitted up for these exercises.

"In addition to the branches above named as embraced in their course of study, some European countries require that the girls in the elementary schools shall receive instruction in sewing, knitting, mending, cutting out garments, and the work of the household; while the boys are taught practical gardening, the elements of carpentry and military tactics. Many schools have rooms, gardens, yards, and shops for these purposes.

V.—INSPECTION OR SUPERVISION OF SCHOOLS.

"No system of schools can reach a high degree of efficiency without close and constant supervision by competent officers. The truth of this proposition is proven by the experience of all countries. So strikingly true is it, indeed, that if informed of the character of the supervision exercised over the schools of a country, one acquainted with the subject can readily describe the condition of the schools. Pennsylvania has all along thought that her system of supervision was one of the most complete in the United States; we will see how it compares with some of the best in operation in European countries. For this purpose we will describe in some detail the system of the Netherlands.

"Holland has an area of 13,464 square miles, and a population of 3,674,402. In extent of territory it is less than one-fourth as large as Pennsylvania, but its population is about the same. It is divided into 11 Provinces and 94 School Districts, in each of which there is an Inspector of Schools, making 105 in all. These Inspectors are appointed by the King, through his Minister of Public Instruction, and hold their office nominally for six years, but virtually as long as they faithfully discharge its duties and behave themselves well. They receive special training for this work, and while in office are allowed to engage in no other. A few statistics will show how complete is the system of supervision of elementary schools, subject to inspection: There were in the Netherlands in 1873, 3,790 schools; of pupils in them, 500,059; and of teachers, including head-masters, assistants and pupil teachers, 11,465. With an equal division, each Provincial Inspector would have under his control, in a jurisdiction of 1,224 square miles, containing 334,128

people, 344 schools with 45,460 pupils, and 1,042 teachers; and each School District Inspector would have to supervise, in a jurisdiction of 143 square miles containing a population of 39,089, only 40 schools, with 5,319 pupils and 122 teachers. This is an admirable arrangement; but to make it more effective, there is in every Commune, a political division corresponding to our townships, a local school board consisting in the less populous Communes of the Burgomaster and Assessors, and in the more populous, of notable persons appointed by the Commune Council. The mode of constituting these boards always bring into them the leading citizens. The duties of the local boards and the inspectors in supervising the schools will be stated in the exact language of the law.

"The School Board shall carefully inspect all schools in the Communes, where elementary instruction is given. They shall visit them at least twice a year, either collectively or by a deputation from their body. They shall see that the regulations concerning elementary instruction are strictly observed. They shall keep a record of the teachers, of the number of pupils and the state of the instruction given. They shall send in to the Communal Council, every year before the first of March, a report, with their observations on the state of education in the Commune, and they shall send a copy of this report to the District School Inspector. They shall give notice to him of any important alterations that may have taken place in the state of the schools; they shall furnish him and the Provincial Inspector with all information they may each require; they shall afford their co-operation to such teachers as may require it, and consider it their duty to promote the interests and prosperity of the schools to the utmost extent of their power.

"The District School Inspectors shall always be fully acquainted with the state of the schools in their district. They shall visit at least twice a year, all schools where elementary instruction is given, and keep an accurate record of such visits. They shall see that the regulations concerning elementary instruction be strictly observed. They shall correspond with the local School Boards, and with the Communal Councils; they shall lay before them, as well as the Provincial Inspector, such proposals as they may think conducive to the interests of education. They shall report to the said Provincial Inspector everything which, in visiting the schools, has appeared to them of importance, and furnish him such information as he may require. They shall send in to the Provincial Inspector before the first of May in every year, a report on the state of education in their district, with their remarks thereon, and send a copy thereof to the States' Deputies. They shall promote the interests of the teachers and their periodical meetings, and be present at them if possible. The District School Inspectors shall have access to the meetings of all local School Boards in the district, and they shall have a consultative voice in such meetings.

"The Provincial Inspectors shall, both by visiting the schools and by oral and written communications with the local School Boards and with the communal Council, do their utmost for the improvement and prosperity of the schools. They shall advise our Minister of the Interior on any questions respecting which their opinion may be required. They shall prepare from the annual reports of the District School Inspectors a report, with their own observations, on the state of education in their Province, and send this report, before the first of July in each year, to our Minister of the Interior."

"Cousin, in his report to the French Government, as long ago as 1836, thus explained the working of the system of school inspection in the Netherlands:

"Every Inspector resides in his own district, and he is bound to inspect every school at least twice a year, and he has jurisdiction over primary schools of every grade within his district. Without his approval, no one can either be a public or a private teacher, and no public or private teacher can retain his situation or be promoted, or receive a gratuity, for no commissioner has any power in his absence, and he is either the chairman or influential member of all meetings that are held. He is thus at the head of the whole of the primary instruction in his particular district. He is required to repair three times a year, to the chief town of the Province, to meet other District Inspectors, and a conference is held, the Governor of the Province presiding, which lasts for a fortnight or three weeks, during which time each Inspector reads a report upon the state of his district, and brings before the meeting all such questions as he desires to have considered. As each Province has its own particular code of regulations, the Provincial Board (at whose head is now the Provincial Inspector) examines whether all the proceed-

ings of the several District Inspectors have been conformable to that particular code; they look to the strict and uniform execution of the code; they pass such measures as belong to them to originate, and they draw up the annual report, which is to be presented to the Central Administration, and submit such amendments as appear to them necessary and useful, and of which the Central Administration is constituted the judge. Under the Minister of the Interior there is a high functionary, the Inspector General of Primary Instruction; and from time to time a general meeting is summoned by the Government, to be held at the Hague, to which each Provincial Board sends a deputy; and thus from the Inspector-General down to the local Inspector of the smallest district, the whole primary instruction is under the direction of Inspectors. Each Inspector has charge of his District, each Provincial Board has charge of his Province, and the general meeting, which may be called the Assembly of the States-General of Primary Instruction, has charge of the whole kingdom. All these authorities are, in their several degrees, analogous in their nature; for all are public functionaries, all are paid and responsible officers. The District Inspector is responsible to the Provincial Board of Commissioners, and they are responsible to the Inspector-General and the Minister of the Interior. In this learned and very simple hierarchy, the powers of every member are clearly defined and limited.

"The system remains the same to-day, both in plan and spirit, as in 1838, but owing to the adoption of modern improvements, its work is much more effective; and it is enough to say in praise of it, that it has made the schools of the Netherlands among the best, if not the best, in the whole world.

"In all that has been said, we have had in mind only the inspection of elementary instruction; it should now be added that special provision is made, and special officers appointed, for the inspection of Secondary, High, and Professional education. The system is comprehensive and thorough.

"VI.—SECONDARY EDUCATION.

"By Secondary education, in a European sense, is meant the general education that is imparted in the schools that stand between the Elementary schools, on the one hand, and the Colleges and Universities on the other. The grade of Secondary school in Europe, is about equal to our best High Schools and Academies. Much is done in the nations of the Old World most advanced educationally to establish and support this class of schools; and intelligent foreigners, studying the system of education in the United States, are apt to note our lack of a proportionate number of similar schools as a serious defect. Dr. McCosh, President of the Princeton College, an extensive traveller, and a close observer, and withal an ardent lover of republican institutions, says on the subject, in an address delivered before the National Teachers' Association:

"The grand educational want of America at this present time is a judiciously scattered body of secondary schools, to carry on our brighter youths from what has been commenced in the primary schools, and may be so well completed in our colleges. How are young men to mount from the lower to the higher platform? Everyone has heard of the man who built a fine house of two stories, each large and commodious, but who neglected to put a stair between them. It appears to me there has been a like mistake committed in most of the States of the Union. We need a set of intermediate schools to enable the abler youths of America to take advantage of the education provided in the colleges.

"To show how rich some European countries are in this class of schools, I will simply copy a few figures from the report before me:

"*Germany*.—Population, 41,000,000; secondary schools for boys, 1,043, with 12,000 teachers and 177,379 students.

"*Austria*.—Population, 36,000,000; secondary schools for boys, 205, with 3,307 teachers, and 49,280 students.

"*Italy*.—Population, 27,000,000; secondary schools for both sexes, 383; students, 18,852.

"*Netherlands*.—Population, 3,674,402; secondary schools, 219; teachers, 1,390; students, 14,500.

"*Sweden*.—Population, 4,250,452; secondary schools, 103; students, 11,874.

“*Switzerland*.—Population, 2,669,147; secondary schools, 375; teachers, 1,000; students, 12,750.”

“VII.—INDUSTRIAL SCHOOLS.

“It has been already stated that industrial work of certain kinds, chiefly needle-work for girls, and gardening for boys, forms a part of the course of instruction in a large portion of the elementary schools of Europe. In addition to this, there has been established, mostly within a few years, a large number of special industrial or trade schools for both sexes. Says Mr. F. Buisson, a delegate from France to the Vienna exposition as well as to our own at Philadelphia, in his report to his government respecting education at the former: ‘Nearly all countries rival one another in their efforts at the present time to organize, partly with the funds of the state and municipalities, and partly with private resources, a great number of institutions, new and original, and designed to form the transition between the school and the shop. Some of those which have been in operation several years, have already rendered great service to that part of the working class who can spare their children now, for the sake of their increased help after having finished their course of instruction.’ The United States has, as yet, taken little part in this movement; but is high time that something should be done to enable our youth to learn trades and to form industrious habits and a taste for work. It is not enough to instruct a boy in the branches of learning usually taught in our common schools, and there leave him; it must be seen to by some authority that he is allowed a chance to prepare himself to earn a livelihood. It takes more than a mere knowledge of books to make a useful member of society and a good citizen. The present product of our schools seem to be, in too great a degree, clerks, book-keepers, salesmen, agents, office-seekers, and office-holders. We must so modify our systems of instruction as to send out large classes of young people fitted for trades, for business, and willing and able to work. Europe is teaching us how to do this, and we must sit at her feet and learn.

“The character of this movement abroad, in the direction of a more practical education, and its benefits to the working class, to society and to the State, cannot be better described than by the translation of some paragraphs of M. Buisson’s report above referred to. We shall only quote what he says of the movement in certain parts of Germany and in Austria.

“In Saxony, contrary to the practice elsewhere almost universal in Germany, instruction in trades and for business is made to follow immediately that of the daily primary school. To this circumstance is owing the establishment of the schools of building at Leipsic, Dresden and other places; and all that fine group of special schools at Chemnitz, designed to give preparation for mechanical, manufacturing and chemical industrial art, etc.; and, in addition, a great number of lower schools for weaving, lace-making, needle-work and wood-carving.

“In North Germany the model of the industrial establishments of all grades is incontestably that at Hamburgh. The general school and the special school for building, open in the evening and on Sunday for apprentices and workmen, and every day to pupils who have the time at their disposal, imparts remarkable instruction in all respects, in its simplicity, its excellent method, its practical character, and the variety of its applications. The industrial school for girls, which was founded in 1867, is managed in the same spirit, and with a success equally marked. The organization of these establishments, and the course of instruction which they have adopted, were the object of the most lively attention and sympathy at Vienna.

“Of all countries in Germany, Wurtemberg was the first to give large development to popular industrial instruction. The great special school for building, at Stuttgard, numbers some seven hundred students, of whom it demands for admission only good primary instruction, or the qualification of apprentices or workmen in this branch of industry. The State aids the establishment by a yearly appropriation of 80,000 francs. The course requires from two to five years. Wurtemberg has also several good schools for weaving, of which three received awards for excellent methods and the practical character of their work. In all, there are fifty industrial schools in Wurtemberg. The Grand Duchy of Baden has also had for many years in operation very good industrial schools, which have exercised a marked influence on the industries of the country.

"Bavaria, although introducing this kind of practical instruction at a later day than some of the neighbouring countries, possesses already from a hundred to a hundred and fifty industrial schools, some of them elementary, and placed immediately above the primary schools; others in a degree higher, eight of them serving as model schools for eight Circles; and still others devoted to special industries as building, the construction of machines, drawing and sculpture applied to the making of furniture and objects of art of all kinds.

"The single polytechnic association of the Circle of Wurzburg has established within a few years 111 industrial schools or courses, of which 16 are for apprentices and workmen. These different establishments, spread over a territory scarcely larger than one of our French departments, employ 315 professors; and teach German, French, Calligraphy, Book-keeping, Arithmetic, and the Metric System, with special reference to applications to commercial affairs, Geometry, Design, Modelling, outlines of Natural History, Hygiene, Political Economy, etc.

"Austria began the organization of industrial instruction at a later day than Germany, but she has developed it with a rapidity and a success which are truly extraordinary. There is no other country, we believe, which has done more in this regard within the last six or eight years.

"After having placed herself among the first nations in Europe, for the encouragement given to superior or polytechnic education, Austria had no industrial establishments for the people. She had resembled ten years ago an army which has at its head a brilliant major-general, very mediocre corps and division officers, and no subordinate officers at all. Between the highest and the lowest industries, as between patron and workmen, the tie of union failed. The trade and business of the country seemed manacled for the want of foremen. The gradual decrease of this middle class, the elite among workmen, indispensable as they are to commerce, agriculture, manufactures, and all other kinds of industry, so stirred up public opinion that the Government, urged and seconded by numerous societies of landlords, manufacturers and economists, undertook to establish at once a system of institutions for imparting instruction in trades and business, to large classes of workmen and laborers and their children. The Real Schools were at first re-organized in a way to lead from polytechnic instruction to the higher special industries. Then, below the Real Schools, designed for the burgher class, they established schools more popular and of a character more specially industrial, adapted to prepare foremen for different important branches of industry. Some of these are 'complementary' schools, and merely review the ordinary branches of school instruction with a view to their practical application, or impart this knowledge in connection with a more special course of preparation for apprenticeship; others devote themselves exclusively to preparation for apprenticeship, and still others assume as a preliminary an apprenticeship to some trade or branch of business.

"Thus Austria possessed eight years ago three schools for weaving, at Vienna, Reichenberg and Brunn; she has now added, as popular 'complementary' schools, twenty lower schools for weaving, two or three schools for lace-making, and as many workshop schools. Several of these schools so recently established, received marked commendation at the Exposition, for the success with which they already apply the latest improvements introduced into the process of manufacturing in the different stages of their instruction, and, for what is more difficult, the style and taste which they apply in developing new departments of design.

"In another branch, the industry of building, Austria for a long time possessed only an establishment for higher instruction. She opened, in 1862, at Kagenfurt, a school and workshop for the whole group of mechanical industries; then, in 1864, at Vienna, a remarkable school for building, founded by Mr. Maerteus, and subsidized in common by the State, the Province, and the Commune of Vienna. This establishment, which receives scholars without any other preparation than that of the primary school, has provided an excellent programme of industrial instruction, both theoretical and practical, for foremen as carpenters, cabinet makers, masons, etc. Six other analogous establishments have grown up since 1870, in the capital and in the provinces, partly from subsidies granted jointly by the ministers of education and commerce. To this statement we must add the special school for watch-making at Vienna; and throughout the Empire,

fifteen schools for giving instruction in the arts of working in wood, marble and ivory; six for instruction in making toys; four for instruction in making baskets and mats; and seven for instruction in making arms and other metallurgic industries.

"Several of these foundations have been acknowledged as a public benefit by the rural population of the Empire. The schools for the sculpture of wood, for example, have created a new kind of business in the mountainous districts of Bohemia, Silesia and Moravia, where they make a great many toys for children at a low price; and also in several localities in the Austrian Alps, in the Tyrol notably, where the shepherds are as skilful as those of Switzerland or the Black Forest in cutting in wood and carving with knives the figures of animals, cottages, boxes and statuettes, without art but not without grace. Besides, in the Duchy of Salzburg, for example, the local industry which had very much slackened or wholly disappeared, owing to the exhaustion of salt in the mines, has returned again very opportunely upon the introduction of new kinds of business, with schools to prepare the young for them.

"Even among the schools that give instruction in woodwork only, each is required by the Government to specialize sufficiently to accommodate itself to the particular needs and resources of the region in which it is located. In the Tyrol, for example, the shop-school of sculptor Greissemann, at Imst, attracting attention at the Exposition for the good taste shown in its scholars' work, is designed to develop over all others, artistic cabinet work and ornamental furniture. At Innsbruck, the industrial school applies itself to figures; that of Mondsee, to groups of animals; that of Saint Ulrich, to the sculpture of religious statues, and that of Wallern, to the commoner kinds of furniture, and to cases for clocks, etc.

"The industry of glass-making, especially in Bohemia, had, before 1870, only a single special school, that at Steinschoenau; at the present time all those who desire to learn the art, commence with the appropriate studies of industrial design, and apply themselves later to the technical work of making crystals, manufacturing glass and decorating enamel and porcelain. They are now organizing in Bohemia several schools of modelling, in view of the ceramic industries.'

"To the preceding extract from the report of M. Buisson, we add, for the purpose of showing in some detail the working of a European industrial school, a brief account of the 'Artisans' School' of Rotterdam, in the Netherlands, an institution that was very handsomely represented at the Philadelphia Exposition. It will serve as an example of the class of schools to which it belongs.

"The Artisans' School at Rotterdam was established in 1869, and is intended for sons of workmen. In order to gain admission they must be from twelve to fifteen years of age, and be able to read and write. An elementary knowledge of arithmetic is also required. The number of pupils is now about 200, and is increasing. They pay a small fee, and are expected to remain in the school for three years. The institution is both a school and a workshop. In the school are taught, for a part of the day, branches in which instruction is usually given in our common schools, together with Algebra, Geometry, Elementary Mechanics and Physics, Drawing, Singing, etc. The workshops in which the remaining part of the day is spent are arranged for different trades, and are large and comfortable. There are shops for each of the following classes of workmen: carpenters, blacksmiths, metal-workers, masons, stone-cutters, cabinet-makers, wood-carvers, metal-turners, and others less important.

"For the following information concerning the school we are mainly indebted to a report of the directors:

"The practical instruction, certainly the most important for the class of pupils admitted to the institution, who when they leave school must be fit for practical life, is given in the afternoon in special workshops by clever masters, where the boys are taught for carpenters, smiths, braziers, painters, masons, stone cutters, cabinet-makers, wood-carvers, modellers, turners, etc. All petty work is entirely excluded; the boys are as much as possible occupied with work of solidity and utility, either for use in the school, or for sale to the trade. This instruction is given in such a way that, without exaggeration, it may be said that the pupil, from the moment of entering the school, or in this instance the workshop, enters into real life. In the first place he is made familiar with the tools, and immediately afterward entrusted with work, which, when finished, has a real destination,

so that his task is never useless in his own eyes. The ambition and the desire to do right are kept more alive in this way, than by working without a well-defined aim. Moreover, experience has taught that a promise to be allowed to work at a large and *bona fide* piece of workmanship excites ambition in boys.

"The workshops are all as far as possible to the standard of the present day, and provided with all necessary tools and conveniences of the most approved kind and quality. The boys are not allowed even to handle imperfect or worn-out tools. In the carpenter's shop, where more than eighty pupils are taught together, there are a sufficient number of benches, with all requisites thereto belonging; and in the smithies, with seventy boys, are all needed forges, anvils, vises, benches, &c.

"Besides, the continual enlargements and improvements of the several workshops, required by the increasing number of pupils, constructed by the boys themselves under the eye of the masters, the carpenters make chests for the school, benches, trestles, ladders and steps, windows, doors, desks, &c. The smiths make big nails, cramps, hooks, hinges, locks, stoves with appurtenances, screw nuts, smiths' tongs, girders, &c. The braziers make different kitchen utensils, as water-cans, soap-tins, baking-pans, kettles, dust-pans, springs, stair-rods and eyes, basins, &c. The braziers are also taught stretching, turning, forging and soldering. The instrument makers, working in the smithies, are instructed in the cutting of screws and worms, the forging of steel and copper and the casting of copper objects. The masons make different joints, plain walls, foundations, chimneys, niches, sewers, arches, &c. The stone-cutters make sink-stones, steps, stone thresholds, keystones, and besides this, they are taught the hewing of slabs, transposing stones, placing finished pieces of masonry, flooring tiles and placing plinths. The painters are instructed how to make putty, to grind paint, to stop, to smooth, to rub, to cut and to set window glass, to write and paint letters, and to imitate wood and marble. In the workshops for cabinet-makers, wood-carvers and turners, they make benches, lime and screw tongs and other tools, drawers and mottled and carved ornaments."

"That these boys attain a good degree of skill in their work, was plainly proven by the collection of articles made by them and exhibited at Philadelphia. Those who examined them closely, and understood the character of the institution making the exhibit, were both surprised and delighted with the result. Their interest was greatly increased when told that the experiment at Rotterdam had shown that boys who are occupied one-half the day with books in the school, and the remaining half-day with tools in the shops, make about as rapid intellectual progress as those of equal ability who spend the whole day in study and recitation. And in addition, the mechanical skill they acquire is of immense value.

"It ought to be remarked also, that the instruction given in the school, has constant reference to the practical ends to be subserved. Take drawing for example. As soon as the boys have obtained some practice in copying mathematical problems and constructions from models, they are set to draw simple constructions from life, wood, iron, or brickwork, such as window joints, doors, jambs, ravelins, stair-cases, simple roof constructions, brace-work, hinges, screws, springs, locks, masonry joints, simple stone work, profiles of cornices, architraves, panel joints, &c. To draw a lock, the pupil proceeds as follows: After having drawn the outside, he removes the plate and draws the inside, locked as well as unlocked; afterwards every part that offers any peculiarity is treated separately and from every point of view, the outside and the underside of the slide are drawn, and also the tumblers and the spring. Then the lock is again put together by the pupil, so that at the same time he has gained a clear idea of the right place of every part, and is prepared to complement his theoretical knowledge by making in the shop the article he has drawn. Arithmetic, Geometry, Chemistry, Physics and other branches are taught in the same way with reference to the immediate practical application of their principles.

"The number of masters employed in the school at Rotterdam is twenty-one; a director, who is at the same time teacher of construction and projective drawing and the knowledge of materials; a sub-director, teaching construction drawing; a teacher of rectilinear and architectural drawing; two teachers of ornamental and model drawing; a teacher of physics; one of mathematics; one for repetition of general branches; a singing

master; four master carpenters; three smiths; one metal worker; one stone-cutter; one cabinet-maker; one painter; one moulder and wood-carver, and one wood-turner.

"When the boys have successfully completed the course of three years, they are honourably dismissed, and the authorities of the school readily procure good places for them as workmen, where for five years longer they are kept in view and followed with influences for their welfare. The pay received by them is considerably higher than that received by other boys of the same age who have not enjoyed the advantages of the school."

"The subject of Industrial Schools is becoming of so much importance in this country, that I feel justified in having devoted a considerable amount of space to its consideration.

VIII.—HIGHER TECHNICAL EDUCATION.

"Above the class of Industrial or Trade Schools, like that just described at Rotterdam, there are in almost all the nations of Europe, wholly or in part supported by the Government, many institutions devoted to the work of imparting instruction in special branches of learning appertaining to some trade, occupation or profession. There are schools of law, medicine and theology; schools of mining, agriculture, horticulture, forestry, architecture, engineering, veterinary surgery; schools of drawing, painting, music, sculpture, landscape gardening; naval, military and commercial schools; schools for nurses, cooks, &c. But of these we cannot speak here, and passing them by, we at once call attention to the great Technical schools or Polytechnic Colleges, of which little is known in this country. There are many such institutions, some of them on a grand scale, but the principal ones represented at the Exposition were those at Stockholm, Lisbon, Moscow and St. Petersburg. The exhibits of the Russian schools were located in Machinery Hall, and were by very much the most systematic and instructive collection of objects of their class on the ground; and the United States must be blind indeed, not to profit by the lesson they so admirably taught. The schools at Moscow and St. Petersburg are so nearly alike in their courses and methods, that a description of one is a description of both. A brief account of the school at Moscow is all that will be attempted here, all that is necessary, I trust, to awaken an interest in the subject among our people.

"The Technical school at Moscow is under the immediate patronage of the Emperor, and possesses buildings suitable for schools, workshops, offices, &c., and an endowment fund of over \$2,000,000. It has a special library, containing more than 6,000 volumes of works on specialities, a cabinet of physics, two chemical laboratories, a cabinet of mechanical models, a cabinet of natural history, and extensive mechanical works with separate smithy, foundry, &c. The students number about 600, and they are admitted only after a severe competitive examination, embracing the several branches taught in the gymnasia of the Empire. The course covers six years. The work of these six years may be divided as follows:

"1. A three years' course of general study, embracing the following subjects:—Religion, Freehand and Linear Drawing, Descriptive Geometry, General Physics, Zoology, Botany, Mineralogy, Chemistry, Geodesy, Analytical Geometry, Higher Algebra, Differential and Integral Calculus, General Mechanics, Drawing of Machine-parts, the French and German Languages.

"2. A three years' course of special study, embracing the following subjects: Organic and Analytical Chemistry, Metallurgy, Practical Physics, Mechanical and Chemical Technology, Technics of Wood and Metals, Analytical Mechanics, Railway Construction, Engineering and Constructive Art, Projecting and Estimating of Machines, Works and Mills, Industrial Statistics and Book-keeping."

"Parallel with these theoretical courses are the practical courses, viz.:

"3. A course of systematic instruction in the school workshops. These workshops consist of a joiners' shop, with turning lathe, pattern shop, fitters' shop, smithy and moulding shop."

"Every one of the shops is under the management of a technologist—specialist—or a skilled workman, and their duty is to instruct the pupil in the rudiments of mechanical labour. Every pupil is instructed in the shops in turning, fitting, carpentering and forging, constituting the elements of the mechanical art. The whole operation is analyzed

into a series of progressive steps, and the pupil begins with the simple and easy, and gradually passes on to the complex and difficult. Tools, one after another, are placed in their hands, and they are taught their uses and how to handle them, sometimes how to make them, and this process goes on until they are able to execute skilfully the work of the several shops. But, to make the whole matter more clear, we will introduce, at this point, an extract, modified somewhat in the form of expression, from an account of the working of the school by the director, Mr. Victor Della-Voss. He says:

"The auxiliaries of education appointed for the teaching of any mechanical work whatever, for example, fitters' work, are classed in three categories; to the first of these belong the collections of instruments employed in fitters' work, with which the beginner must make himself perfectly familiar before entering upon work, and afterwards to use those instruments during the execution of the work itself. To this category relate all those collections of models indispensable to the teacher of fitters' work, for the purpose of demonstration; the collection of instruments most in use for measuring, full size; the collection of instruments, full size, for drilling metals; the collection of instruments, full size, for finishing, from the smithy to the fitting shop, inclusive. And, also, models of files, increased to twenty-four times their ordinary size, for the purpose of demonstrating the surface of the incision; the collection of models of instruments employed in cutting screws and nuts, increased six times their ordinary size, for the study of the direction of the angles of incision; the collection of models of drills, increased six times, for the practical study of the cutting angles; and, lastly, the collection of instruments and apparatus for teaching the tracing of yet unworked metal articles.

"To the second category belong the collections of models appointed for the systematic and gradationary study of hand labour in the fitters' art. These collections have the same significance with regard to the work of fitting as is allowed to scales and exercises in instruction in music. They are so ordered that the beginner may be enabled to overcome by certain gradations the difficulties which present themselves before him. It will be sufficient to glance at the objects contained in these collections to be convinced that if the pupil, under the guidance of the teacher, carefully study all the objects embraced in the collections, or, in other words, complete the educational programme of the art of fitting, he must inevitably, and in the most rational manner, render himself familiar with all the known practical hand labour of this art. With such a system of instruction, the supervision of the teacher over the pupils and his observation of their progress become exceedingly easy. He need only see that each step in the programme is executed satisfactorily by the pupil, and putting the next step before him, give the necessary explanations for his further progress. By this method instruction to classes in the shops is just as easy, and is attended with the same advantages as instruction to classes in the school-rooms.

"To the third category belongs the collection of such articles or parts of machines that, in the execution of them, all the practical hand labour of the fitters' art is successively repeated, having been acquired during the studies of the previous course.

"What is above said in relation to the manner of study of the work of fitting applies also to the other branches of labour taught in the shops, wood-turning, carpentering, smithy and foundry work.

"In the school workshops, a pupil must make himself acquainted with 85 different tools in wood-turnery, and 30 casting models and machines; 80 tools in model joinery, and 43 models in wood joinings, and patterns, and castings; 60 tools in forging; 130 tools in metal turnery; and in the fitting shop he must familiarize himself with hundreds of models of drills, files, screws, etc., constructed on a large scale in order the better to exhibit the principle involved, and with other hundreds of tools used in the work appropriate to the shop. All through their course the pupils are required to repair their own tools, and to construct samples of a number of them.

"4. A course of practical mechanics in the works attached to the school. From the school workshops, as described above, the students are transferred to the large machine shops attached to the schools, where they are employed under skilled masters in constructing upon orders, steam engines, working engines, pumps, agricultural machines, and other machinery of many kinds.

"The works consist of the following shops:—Joiners' shop, Engineers' shop, Erectors' shop, Painters' shop, a large forge with steam hammer and fan blast, iron foundry with furnace, and brass foundry. The works have also a drawing-office and a counting-house attached to them. A steam engine of thirty-horse power is used for the working of the shops, while the foundry, with fan blast and coal pulverizing mill, are worked by an engine of ten-horse power.

The works are under the management of a head mechanical engineer and an assistant. The drawing-office is in charge of a mechanical engineer. The head officers are all graduates of the school. These works being within the walls of the institution, and managed by skillful technologists, would be of important assistance in the instruction of the students, even if they simply looked on and took no active part in what is done; but trained as they are to perform work of all kinds, no system can be conceived better calculated to send forth master mechanics and skilled workmen. It should be added that the works earn, mainly by the labour of students, from \$36,000 to \$46,000 a year."

IX. COMPARISON OF THE CONDITION OF PRIMARY INSTRUCTION IN VARIOUS COUNTRIES.

M. Levassem has read before the Academy of Moral and Political Science, of France, some figures that ought to make governments and peoples read, mark, learn, and inwardly digest. He has analyzed the official records contributed by various countries to the Educational Department of the Vienna Exhibition in 1873. He measures the state of primary instruction throughout the world by the ratio of the number of children on the school-rolls to 100 of the inhabitants. *Upper Canada (or Ontario)* leads this instructive list, having 23 per cent. of registered pupils; then follows the European children in Algeria, 22.8; New South Wales, 21; the Dutch Colonies, 21; Lower Canada, (Quebec) and the United States, 18; Victoria (Australia), 17.5; Switzerland, 15.5; Prussia, 15; Bavaria, Holland and France, 13; Great Britain, 12; Belgium, 11.9; New Brunswick, Austria and Spain, 9; Ireland, 8; Italy, 6.5; Argentine Confederation, 5; Chili, 4; Portugal, 2.5; Russia, 2; Brazil, 1.2; Turkey, 1; and Egypt, 0.2. M. Levassem does not expect very great results from free education, because it simply costs nothing, and doubts the benefits of obligatory instruction, so long as people remain careless and indifferent towards it. He finds that attendance at school is not affected by either climate, race, or form of government, and that while certain exclusively Catholic regions in France have as many children on the school-rolls as in exclusively Protestant countries, he avows that reading among Protestant pupils is more general, owing to the necessity of their perusing religious works.

PART XVI.—AMERICAN EDUCATIONAL LESSONS FROM THE CENTENNIAL EXHIBITION.

In the preceding pages I have sought to bring out, grouped together, as many striking facts as possible, connected with the condition and progress of education in the various countries represented at the Centennial. I have endeavoured to illustrate them either by a brief account of the educational exhibits themselves, or in the detailed or statistical statement of educational progress in the various countries which I have given, or by both together. The perusal of this information, and a knowledge of the facts themselves will, I have no doubt, suggest to the thoughtful reader many valuable lessons applicable to our own educational condition. I have ventured to point out some of these lessons so far as our country is concerned, in a subsequent part of this report. But I have thought it desirable before doing so to avail ourselves first of the calm judgment and practical wisdom of our neighbours in drawing similar lessons of wisdom and experience for themselves from the educational teachings of the exhibition and its more striking features. This I felt to

be the more desirable from the fact that a great similarity in many respects exists in the educational condition of our country and that of some of the American States. With this view, I have selected the remarks on this subject of three or four of the leading American Educationists, whose clear views and comprehensive grasp of mind on the subject seemed to me to peculiarly fit them for this duty. Another advantage which it occurred to me we might derive from a knowledge of the views of these gentlemen on this subject, and that was that they embraced a survey of European systems and methods from an American stand-point. Further, that the educational contrasts which they instituted, and the defects which they pointed out in their own systems and methods as compared with those of others, would convey to us a double lesson, illustrated as it would be by them, from European and American examples and experience.

EXTRACT FROM THE REPORT OF HON. B. G. NORTHROP, SECRETARY TO THE
BOARD OF EDUCATION FOR CONNECTICUT, 1876.

"The Centennial Exposition was a school for the nation. The lessons are manifold. The grandest product of American education—the proudest exhibit at Philadelphia—was the visitors themselves. This product is as directly traceable to our schools as are the fabrics there shown to the mills that made them.

"That so many millions of people* could attend that Exposition, and that 268,653 by actual count of the unerring turnstiles, should gather there in a single day, not only without violence, but maintaining quiet and decorum, and showing proofs of self-command, sobriety and education, reflects more honour upon our nation than did all the works of art, skill, and inventive talent there displayed. That this Exposition, though receiving less aid from the general government than any other—mainly a voluntary work of the people—the fruit of private munificence, should prove of all others, our foreign visitors being judges, the largest in extent, the best in quality, the fullest in attendance, and the first that ever proved a financial success, is also a tribute to American schools—a demonstration of the practical value of universal education, without which such achievements would have been an impossibility. Our visitors from abroad were struck by the self-poise and orderly bearing of our people—by the absence of gendarmes, so conspicuous everywhere in the old world. Nowhere in Europe would so large a throng be allowed to assemble without the presence of the military, which masks the necessity of constantly and visibly guarding the State, under the semblance of giving eclat to all public occasions and celebrations.†

"This Exposition has broadened the views of millions. It was to them the world in miniature, where they gained new ideas of the achievements of modern civilization. While examining the productions of almost every nation of the globe, they breathed a cosmopolitan air—a healthful corrective of conceit, narrowness, prejudice and exclusiveness, enlarging each one's acquaintance and sympathies, and making more real the great brotherhood of the human family.

"Travel is an important means of education. Personal observation gathers the most

* The total number of admissions at the gates was 9,910,966.

† Prof. Wm. H. Brewer, who, as one of the Bureau of Judges, spent most of the autumn at Philadelphia, reports to me the following conversation of a foreign officer:—

"I have been here some months, and have seen great crowds at the Exposition, sometimes over a hundred thousand in a day. They cover the ground like ants, but the strangest thing to me is, that there are no riots, no disturbance, no violence, and yet no soldiers are here to hold the people in check. I have seen some military companies playing soldiers and coming in their uniforms to see the show, but taking no part in preserving the peace. While there has been no rowdyism. I have seen plenty of ill manners—well dressed women for example—taking hold of a Chinese commissioner's cue to see if it were real hair, and stop and stare at a Spanish guard's bright uniform or a Turk's costume, and ill-bred boys point and laugh at his baggy trousers. In my country, no woman however strong her curiosity, would show such ill breeding; and yet, with all our politeness, we must keep soldiers always at hand to restrain the people from disorder, riots and pillage. But with all the ill manners in America, the people seem very kind, stepping aside for a rolling chair, and even outside, when there is a horrible rush for the cars, with pushing and rudeness, nobody fights, but all seem good-natured. All this seems very curious to me."

striking materials for investigation and reflection. But the Exposition, like an extended panoramic tour, epitomized to the many the lessons which a trip round the world amplifies to a few. In a brief time and at comparatively little expense, it showed many millions of people what it would have cost each one months, if not years, to learn by travel alone. It was also a school of fellowship and good feeling. The intermingling of our people from the north and south, the east and west, meeting on common ground at the Centennial anniversary of the Republic, forming new social ties, strengthening old associations, kindling patriotic fervour and fraternizing all, was a timely antidote to the repellent influences of an intense political struggle.

"The intermingling also of representatives of the great civilized and semi-civilized nations of the world, meeting on the common ground of sympathy with the progress of humanity, each nation willing to impart, and anxious to receive, all more or less prompted to deeds of national generosity, and all mutually revealing and discovering new traits of excellence—was of incalculable value in disposing the people of the world to international peace. Harmonious conferences in cases of national disagreements, and arbitrations like that of Geneva, will be the necessary sequences of the hearty international exhibition of 1876; and so long as Krupp cannons and monitor turrets are sent as delegates to such a re-union of a common human brotherhood, they will be far less likely to do that fearful work in the destruction of human life, for which they are designed.

"One feature of the exhibits is worth noticing as showing either a radical difference of type between the Occidental and Oriental mind; or else, what is far more probable, the difference between the results of the imperfect, traditional, fossilized education of the great empires of Asia, and that education of Christian civilization which we enjoy. Close observers have remarked that while in the exhibits of the so-called Christian nations the displays of skill were largely *inventive*, that is, devising new combinations and appliances for increasing comfort or productiveness, the skill of Oriental nations, perhaps no less wonderful of its kind, showed itself to be but feebly *imitative*, being essentially and laboriously *imitative*—a reproducing of old ideas in innumerable forms of minute expertness in handicraft. Invention implies increase of power and growth of ideas and character. Mere imitation keeps a nation repeating itself for ages.

"This tendency on our part to the invention of machines and appliances which confer on society new power, and to the bringing forward of new ideas which uplift whole communities into a higher stage of existence, and into broader fields of influence, may be largely attributed to the nature and the breadth of our popular education. If the common school of Europe and America did have but a scanty corner or two in the vast show, it was nevertheless represented as a leading factor in results, throughout all the broad displays of inventive genius which filled those great halls. But for the work which our present type of education has done and is doing, Machinery Hall, at least, would have been as silent as the grave."

"The Educational Exhibits made by our States consisted mainly of scholars' work, those of European countries, chiefly of school apparatus and appliances, in which they greatly excel, and teach us a much needed lesson. The contrast between European and American school rooms in their equipments is striking. With superior buildings, and more elegant and costly furniture, our bare school rooms have far less provision for illustration.

"*Sweden*.—This was admirably shown in the complete outfit of the Swedish School House, the walls of which were nearly covered with charts for teaching every department of natural history, physiology, and botany; maps, drawing copies, and charts for teaching reading, writing and arithmetic. Their charts in natural history were of such rare excellence, that I tried to procure them for our Normal School, but found that they were already sold to Japan. I secured two large volumes containing many hundred species from their grand herbarium. Here were eight cases containing their ordinary species of moss, lichen and fungi. In other cases were stuffed specimens of mammals, birds, fishes, reptiles and preserved molluscs; and minerals, shells, corals, fossils, grains, seeds, nuts, woods, and insects. As illustrating a plan I have long recommended to teachers, I purchased the large case of native woods here shown, such as any teacher might procure for his school without any cost. Our youth need to be taught the beauty of our native woods, and to discriminate the different kinds of wood by the grain. There

were maps showing the geology as well as the geography of Sweden, and also the rainfall, temperature and density of population of the different sections of the country. Besides a small set of philosophical and chemical apparatus, there were shown geometric forms and metric weights and measures. The latter is an appliance usually found in the schools of the continent, and just beginning to be introduced into the schools of America. Notation is taught in the Swedish schools by bundles of small sticks like long matches, tied together in packages of tens, hundreds, thousands, and so on, placed in a board with holes in the unit place for single sticks, in the tens place, for the packages of tens, and so on. A clock face with movable hands served to show how to read the time, the teacher setting it and the scholars reading the time, or the scholars each in turn both setting and reading the time. Upon the school organ was a blank musical staff, on which by an ingenious contrivance the notes instantly darted into place as the teacher played the instrument, so that the notes were sounded and shown at the same instant.

"BELGIUM.—In the Belgian school house were shown most of the same appliances as in the Swedish, especially the specimens in natural history, and samples of wool, minerals, insects, and other objects found in the vicinity of the school; also, celestial and terrestrial globes, geometric forms, a printed programme of study, and a thermometer for each room; a library of reference books, copies and models for drawing and for lessons in architecture, and a set of metric scales, weights and measures, also a variety of fabrics of leather, linen, woolen, silks, and the like, arranged in connection with the material out of which they were made, and this material shown in various stages of growth or preparation. The crucifix and a bust or portrait of the king are usually found in the Belgian schools. The apparatus for light gymnastics are also common. Gymnastics are widely practised in Switzerland, Germany, Austria, Belgium, and some other European countries.

"SWITZERLAND showed most of the same appliances, and besides some excellent needle and worsted work done by girls. Advocating industrial schools for girls as well as boys, I endeavoured to procure the latter to illustrate the practicability of similar work here. These interesting specimens for the present have been returned, as originally promised, to the Cantons that furnished them, but I have arranged to secure either these or others like them, during the present year for our Normal School. The influence of Industrial Schools in Switzerland, Germany, and other European countries, is as important in dignifying labour as in increasing its efficiency and productive value. Girls as well as boys are there taught, both in the family and school, that to learn to be useful is alike their interest, privilege, and duty. The too common theory with us that labour is a degrading drudgery, and the aspiration for genteel employments, have ruined myriads of our young men, and brought financial disaster to the nation. These mischievous notions ought to be refuted in our schools, where our youth should be taught the necessity and dignity of labour, the evils of indolence, and the sin and folly of this wide-spread disdain for manual labour. This sentiment, that labour is servile and degrading, is one of the worst effects of American slavery that survive it. The Swiss schools not only have the metric weights and measures, but require the pupils to weigh objects and work out extemporized problems of cost, per kilo, of common objects to traffic.

"ONTARIO.—Large and very handsome exhibitions were made by some countries, among them our interprising neighbour, Ontario, of forms, models and drawings, for use in the school room, by means of which, the eye may be made greatly to assist, and in a measure, supplement descriptions, whether given in the text books or by the living teachers. These agencies are much more extensively employed abroad than among us, and might, with great advantage, be more generally introduced here.

"The exhibition of school apparatus made by Ontario was a grateful surprise to most Americans. It was the fullest and finest collection of school and college equipments shown at Fairmount Park, embracing every appliance from the 'gifts and occupations' of the Kindergarten to the apparatus of the college. In a visit to Toronto a few years since, I was greatly interested in the Grand Educational Depository, which the Government of Ontario had established in that city. On the plan of helping those who help themselves, kindred to that of the Connecticut Library Appropriation, the government appropriates within certain limits, an amount equal to that raised by the local authorities for the purchase of apparatus, prize-books, text-books, and books for school libraries. These are furnished from the Toronto Depository at two-thirds the retail price, and by the aid of

the government appropriation, may be procured by any educational institution at only one third of the retail price. The grand exhibit made at Philadelphia, was sent directly from this great depository. So far as my observation has extended, the schools of Ontario have as yet but partially accepted this most wise and liberal provision for securing apparatus. Their own statistics confirm my impressions made by visiting Canadian schools.

"But the distribution of books by this agency has been surprising. There have been sent to 4,310 Public Libraries over 253,000, and also for awards to scholars over 627,000 prize-books. The stimulus to studiousness by prizes has been carried further in Ontario than in any country within my knowledge.

"JAPAN.—The School Exhibit of Japan was a new revelation to many, as much as were her beautiful lacquer, bronze, and ceramic works. Photographic views of their old school rooms, were shown in striking contrast with interior views of the new. In one, the pupils sat on their feet, placed behind them in a posture which an American adult could hardly take, and still less endure for any length of time, and yet the posture which, until recently, has been universal in Japan for all classes, and alike the old and young; the other was a representation of our most improved school room and furniture.

"Besides various appliances for teaching gymnastics, the Japanese exhibit included an excellent set of chemical and philosophical apparatus of Japanese workmanship, cases of shells, molluscs, reptiles, insects, birds, fish, and pressed botanical specimens; also charts for reading, writing, arithmetic, drawing, and a most beautiful series of coloured charts in natural history and botany. I should deem it most fortunate for Connecticut if every school was supplied with charts as admirable as these for teaching natural history any botany, a set of which, presented to me by Hon. Fugimaro Tanaka, the Minister of Public Instruction, may be seen at the office of the Board of Education."

II. EXTRACTS FROM THE REPORT OF THE SUPERINTENDENT OF PUBLIC INSTRUCTION OF THE STATE OF PENNSYLVANIA.

"No one can read the statements made in my Report without coming at once to the conclusion that Pennsylvania has something yet to learn in educational affairs.

Our people have the ambition, I trust, to compare themselves not with the weak but with the strong; not with the slow, but with the fleet; not with the bad, but with the best; and the courage withal to enter the lists for the great educational race, that is presented to test the moral and mental capabilities of men, and the political vitality of nations. I have seized the grand opportunity afforded by the International Exposition held on our soil, to gather, passing by those less worth gathering, the best and fairest educational fruits ripened in other countries; and I would urge immediate action, that we may not fall behind in the noble struggle, growing every year more earnest the world over, towards a higher civilization and a purer life. The particular lessons that I would impress upon the Legislature and the people are:—

"1. That the policy of placing so much power in the hands of local School Boards, as is done by our laws, has its weak as well as its strong points. Among intelligent citizens, alive to the interests of education, it is worthy of all praise; but where an ignorant people, or a people wanting in public spirit, elect School Boards like themselves, no policy could possibly be worse. Can we not find a way to strengthen what is weak in this part of our system of public education? Indeed it is easy to see that, as a whole, our educational forces and agencies can be so organized as to greatly increase their efficiency.

"2. That the State should lose no time in adopting some plan of aiding the district school boards in erecting and furnishing school-houses. No more unsightly, uncomfortable, inconvenient, badly-lighted, badly-heated, badly-ventilated, ill-furnished school-houses should be permitted to be erected in the State by anybody, to disfigure the landscape and disgrace the people. With the same money now sent for the purpose, school-houses of the most approved plan can be built.

"3. That the status of the teacher should be more clearly defined by law, and proper privileges be accorded to those who prepare themselves for a life-work in the profession.

"4. That our Normal School system should be modified and strengthened. It is a

fully laughed at everywhere in the Old World, to expect good teachers to grow up themselves. They must be prepared. There must be Normal Schools, or the whole system will fall to the ground, and the State should aid them with a liberal hand. If those we have are anywise defective, let us cure their faults, make them what they should be, and thereafter treat them generously. No policy could be worse than starving them to death.

"5. That the course of study adopted in the elementary schools of Europe should teach us that course so long used in our common schools needs amendment. It should be broader and richer. We want less of words and more of things; less of abstract rules and definitions, and more of living facts. Wise teachers are satisfied that half and more than half the precious years of childhood are wasted by our little ones in an effort to learn what they are entirely incapable of learning. A reform in this direction cannot come too soon.

"6. That as compared with the best systems of supervision in Europe, our system is not close enough, and is too dependent upon the popular will. We need a system of supervision that can keep its eye constantly upon every school-house, every teacher, every class, every pupil, every study; and that will not only permit the officers who administer it to say what they think, but reward them for saying it.

"7. That secondary education, involving the grading of schools, and the establishment of High Schools, Academies and Seminaries, should be more encouraged. The mere mechanical facility of reading, writing and arithmetic, lifts a people up only to a very low plane of civilization. The State has duties in the matter of education far beyond the establishment of elementary schools. The highest function of a school system is not to teach books, but to form character. The primary school may plant this good seed, but it cannot ripen it. What a republic most needs to give it strength is a body of citizens, intelligent, independent, self-reliant, virtuous, too true to them to wrong others, and too true to their country not to use every effort to protect and strengthen it; and qualities like these are in great measure the product of liberal culture.

"8. That not only the interests of business, trade, commerce, and the mechanic arts, but the more important and more vital interests of society and the State itself, demand that our system of public education be supplanted by a system of industrial and technical schools. Experience in the Old World has shown that the theoretical and the practical in learning, can be safely united; and that the workshop can be made an auxiliary to the school in preparing the young for usefulness. We must profit by it.

"9. That a beginning should be made at once for the establishment, at Harrisburg or Philadelphia, of a great State Pedagogical Museum, where all school material that is produced at home or abroad, worthy of such display, may be exhibited.

"In view of these lessons, and to profit by them, more careful inquiry could be made into the character and working of systems of education in other States and countries. France will hold a great International Exposition in the summer of 1878. From what I learn from those engaged in organizing it, the educational department of the Exposition will be much more full and complete than has heretofore been the case at such expositions.

"Do we not know that general intelligence is essential both to the prosperity of the people and the welfare of the State? Is it not the most potential means of promoting all a good citizen could desire for his country, for his fellow-men, or for himself? Let no false economy blind us here. We must provide the best possible system of schools for our youth, if to accomplish it money must be poured out like water. To fail to perform our duty in this regard, is to lose the great battle for free institutions. There is soon to be among the nations the grandest struggle the world has ever seen,—a struggle the result of which is to determine where and under what influences the truest manhood is developed—the noblest men grow up. Cost what it may, we must not be behind in a race that shall test the make and metal of earth's bravest and best, and that Heaven itself will witness with delight."

III. EXTRACTS FROM THE REPORT OF HON. THOMAS B. STOCKWELL, STATE COMMISSIONER OF PUBLIC SCHOOLS, RHODE ISLAND.

"One of the questions frequently asked in reference to the educational exhibit, was, of what use will it be? It certainly served a two-fold purpose, by presenting for inspection of others, that from which something might be learned either to avoid or to imitate,

and also by awakening among our teachers and school officers, a deeper interest in that department of the exhibition, and thus rendering them more eager to study it and obtain from it fresh information, new ideas and better methods. This exhibit, moreover, rendered it possible for us to institute comparisons, and form judgments as to our present status, our needs and our capacity, that would otherwise have been impossible. Like all investments in the line of education, it does not pay its heaviest dividend the first year ; but as year after year shall pass away, it shall be compounded again and again, till the return shall be many fold, in the broader culture, the clearer thought and the greater power of the teachers, with a more simple, thorough and systematical training of the pupils. . . .

"Many lessons were enforced by the exhibition in a way that could not otherwise have been done. Some of these lessons I feel it my duty to suggest here.

"First of all we need a more general and thorough knowledge of the *science* of teaching. Too many of our teachers are still, after years of experience, making costly experiments, that a reasonable knowledge of the principles of teaching, would have shown to be impracticable. Pedagogic science is as capable of accurate presentation as any, and is as readily mastered ; and he who has been taught its principles and their relation, must be as much better qualified to apply them than one who is wholly ignorant of them, as the master of any other science is superior in its application to a novice.

"Another point closely connected with this, is that we may improve the character of our primary work, by devoting more time to the development and culture of the perspective faculties, and less to the reflective. At that age children are not fitted for the latter, while the former is in perfect harmony with their natural development ; but they need careful instruction in the art of seeing as much as in the processes of reasoning. Upon the right or wrong use of their senses will depend the accuracy of the knowledge which must serve as the basis for their judgments. Here, as in the matter of professional skill, we must take lessons from our German friends, and avail ourselves of the opportunities afforded by the field of Natural Science.

"Instruction should be more thoroughly localized. What even the branch may be, it should be illustrated as far as possible by reference to that with which the pupil is familiar. Especially is this true of the Natural Sciences and geography. With the object of thought immediately before them, the teacher can almost unerringly detect the false impressions or the wrong conceptions of his pupils, and thus prevent much subsequent error. Then, when the pupil has become accustomed to this work, he is qualified to enlarge his field of inquiry, and extend his observations through the media of the perceptions of others.

"In geography, to which allusion has been made, this feeling of localizing the instruction would also secure another change which seems to me very desirable. It was noticeable in every European exhibit, that this subject received its chief attention from a point of view quite neglected among us, viz., the physical features. This aspect of the subject was always presented, whether on the text-books, on the maps, globes, or in whatever way it was brought before the mind of the pupil. Relief maps and globes were universal, so that a pupil's idea of a country must be associated with its physical conformation. Such a knowledge of a country cannot but be vastly more valuable, than one which omits it, for very much of political and descriptive geography is dependent upon the physical characteristics.

"A matter of special importance to our own State is that connected with the subject of Drawing. This exhibition has demonstrated beyond a doubt, both the importance and the feasibility of training the people to a higher appreciation of art on the one hand, and to the acquisition of a more truly artistic skill on the other. Of the expediency of taking the necessary steps to secure these results, there ought to be no question after the experience of Great Britain. As an investment alone, the manufacturing interests of Rhode Island cannot afford to allow the opportunity to be neglected.

"The provisions adopted in many foreign countries in reference to the erection of school-houses suggested to me the query whether the best interests of all parties, do not demand that with us there shall be an authoritative supervision of school buildings as shall prevent the construction of those which are conspicuously faulty in their essential features. The principle involved has already been recognized in codes adopted by various city gov-

ernments with reference to certain classes of private buildings. How much clearer the right to secure the protection of general interests in public buildings.

"The last suggestion I would make is with reference to the advisability of creating in connection with our Normal School a museum of pedagogic material. It should be collected by degrees as necessity calls and means permit, till we shall have there as complete a set as possible of all the apparatus needed, or found to be really servicable, in a school-room. It may serve at once as a means of instruction in the school, and also afford an opportunity of study or investigation to teachers and school officers throughout the States.

"If we give heed to these and similar lessons derived from the experience of others, and attend to the demands of our own consciousness, we cannot fail to build up a firm basis, and to create such a system of instruction as shall be consistent both with the rights of the child and the responsibilities of the State."

IV. REPORT BY THE HON. T. H. WHITE, ILLINOIS EDUCATIONAL STATE AGENT.

"There is need of greater permanency in the plan and means by which our work is carried on. The policy which leads to success in any commercial enterprise will apply just as forcibly in educational work. Careful management under competent and permanent direction have built up the great business establishments of the country. If our educational progress shall keep pace with the growth of our industrial interests, or with the intellectual advancement of other countries, it must be managed as well. When the Czar of Russia, in his projects for developing the wealth and power of his country and educating his people, finds a man fitted for a certain work, he puts him at it and keeps him there. As a result, there was in the Russian department of the exposition an array of material for illustration in teaching almost every branch of knowledge, prophesying a future progress for that nation which we can but poorly conceive. The instruction in some of her higher institutions is even now equal to that of the best schools of their kind in this or any other country. Already the Massachusetts Institute of Technology has introduced her methods in some of its departments, and other similar schools are contemplating the same action. And all this is mainly the result of one man's labour in giving shape to her educational work. So in other European countries. Their system is permanent and progressive, their administration is fixed, and their teachers are teachers for life.

"ONTARIO.—In visiting the educational exhibit of Ontario—a display which found, from its peculiar character, but little competition from our own States—one met men who have been connected for years with the control of her system of schools, men who were at the outset selected because they were fitted for their positions, men who make their plans for their work, and then work to carry them out. They are never deterred from a course which they are certain would be for the advancement of education for fear that it will excite the prejudice of enough voters to control the nominating caucus or political election, and that the people would then retire them from office and so their plans be overturned and their work destroyed. On my return from Philadelphia, I had the pleasure to meet in Toronto the teachers of the Province in their annual meeting, and an opportunity to learn something of the working of their system. They informed me that some of its most valuable features, when introduced a few years since, encountered the prejudice of large numbers of the people, and even of the teachers themselves. This feeling has gradually died away, and now all recognize the wisdom of the regulations.

"I do not wish to be understood as commending all the features of their system. Some of them would be no improvement upon our own. But this one of greater permanency of administration, and its independence of the party feeling that prevails at popular elections, might, it seems to me, be profitably adopted by us.

"PENNSYLVANIA.—But we need not go outside of our own country to learn the same lesson. There was not a single state exhibit which was more extensively visited, more widely commended, and which brought more credit to the American idea of education, than that of Pennsylvania. As an exposé of the working of all the educational agencies of a state, both public and private, advanced and elementary, reformatory and charitable, and of the means used in producing educational results, it went far to show how grand the educational feature of the exposition would have been, had it received its proper deserts at the outset, and been carried out according to a well-digested plan.

"The favourable circumstances under which this exhibit was prepared made all this possible; but it could not have been done even then, had the State of Pennsylvania been in the habit of changing her State Superintendent every two, or even every four years. The enlistment of all the forces which were tributary to that exhibit could be done only by a man who was familiar with his resources, and who knew how to marshal them into action. Such a knowledge comes only by long acquaintance with the whole situation. And he would not have been able to present those splendid results, had the fitness of his host of subordinate officers for their positions been determined by the deliberations of a political caucus.

"Let us ask that our educational work be lifted above such associations, and that it be treated with that consideration which its importance demands. Education knows no party, and violence is done it when it is dragged into the arena of political strife. Upon it depend the progress and the very life of the state, and it is entitled to better treatment from her than to be made the foot-ball of party strife at the polls.

"II. A second lesson taught by the exposition is, that our primary instruction deals too much with the abstract, too little with the concrete. The exhibits from this country showed an array of results of school work. Other countries showed very little of this, and more of the means for working out results.

"The abstract has its origin in the concrete. Conceptions, the material which furnishes food for the judgment, come from things. If a man has convictions which lead to a decided character, they arise from clearly-defined thoughts. These can be traced back through judgment, comparison, and conception, to first impressions. If these impressions are exact, *truthful*, there exists one condition in the formation of character. If they rest only on the appeal of the teacher to the immature imagination of the child, they lack that completeness which is necessary to a clear comprehension and accurate judgment. The child needs to be awakened from the condition of a recipient of vague notions to that of an active searcher for truth. Through the avenues of the senses he forms impressions which are original, hence clearer.

"Our primary schools should be supplied with greater abundance of aids to the teacher in giving instruction. The schools of technology, natural history, and art, consider such means a necessity in their work. A stronger reason applies for furnishing suitable objects for use in teaching children, whose work should mainly be to acquire accurate impressions of the world about them.

"SWEDEN.—To assist in conveying an idea of her schools, Sweden erected in the exposition grounds a country school-house of her own importation. Under the same roof was a home for the master of the school. The school-room was furnished with single seats and desks, substantially and plainly made. The teacher's desk had two divisions with locks and keys. A cabinet organ stood in one corner. Among the apparatus for teaching geography were globes, a frame for maps, maps of various kinds, and a blackboard upon which were permanently drawn an outline of the country, its rivers, and the boundaries of its political divisions. Upon little blocks were printed the names of the divisions, rivers, towns and cities. The work of the child was to attach its proper name to each object upon the map. So this subject was taught in a way inferior only to actual travel. For instruction in numbers, there was a blackboard for use in teaching their formation, and the method of writing and reading them by means of objects. From it the pupil gains an actual comprehension of number, instead of a familiarity with certain forms of words which are meaningless to him. For teaching botany, there was a large variety of charts and a collection illustrating the flora of the whole country. There was also a collection of mosses, and one of cultivated products, as nuts, seeds, etc. There was a set of apparatus for illustrating the principles of natural philosophy. There were cabinets of natural history containing stuffed beasts, birds and fishes, and specimens of corals, starfishes, crustaceans, molluscs, insects, rocks, ores, and fossils. I have by no means named everything. By means of all these, the child, under the instruction of its teacher, forms a true idea of the various subjects of its study. So the mind grows by an exercise of its own powers. It becomes strong by assimilating its nutriment.

"BELGIUM, RUSSIA, SWITZERLAND.—The exhibits of other countries might be described in detail, each showing its peculiar features, but it is not necessary. Belgium presented its school-house similarly furnished. At first the Russian exhibit reminded

one of an immense toy-shop without any particular purpose or system. But subsequent study revealed that every article was for a purpose and that it was of valuable service in instruction. So Switzerland presented its display. That of Ontario has already been alluded to.

"In this connection the question arises, whether our state, or a single county, cannot encourage its schools to furnish their houses with these appliances, by arranging for a supply at a rate which will be within their means. There are many things which are as much a necessity in the school-room, if we consider what education really is, as the stoves on which we cook our food, the tables from which we eat it, or the chairs on which we sit, are necessities for our homes; and they increase the efficiency and pleasure of school work as much as do these implements economize the labour and add to the enjoyment of home. The proper authorities can agree with a manufacturer to supply such of the schools of a county as desire it, any article at a stipulated reduced rate, at the same time encouraging the schools and saving them the impositions practised by agents whose profits depend upon the credulity of their customers.

"There are other lessons which the careful observer learned from the display at Philadelphia. I will name only one more. It is for those of us who are teachers.

"A workman is known by his chips,' is a homely saying, but full of significance. In the pupils' work we see the teacher as well. In the neatness, the arrangement and the general appearance of papers from schools of about the same grade, there was a great contrast. Often one was reminded that these things, important as habits of life, are too little thought of in the training of children. Penmanship is too much neglected. Orthography, so long as the present system prevails, will always be a stumbling-block to pupils. But greater excellence than manuscripts generally show ought to be attained. The character of the sentences used too often furnished ground for the charge that the study of grammar is a meaningless form rather than a practical reality. The rules for the use of capital letters, especially at the beginning of a sentence, seem to be good to learn and recite, and nothing more.

"If I may be allowed to make a single suggestion in this connection, it is that as we ourselves rise, we lift up those about us.

"A lesson without a point fails to accomplish its full purpose. The following thoughts are suggested for the consideration of those present:

"1. That the teachers of the state secure the establishment of an educational department in their county or district fairs. In this may be exhibited articles of school furniture, apparatus, plans and models of school-houses, school-books, specimens of work done in the schools of the region, and any other things possessing an educational interest. An exhibit of simply the things necessary in every common school would be very suggestive. If steps be taken in season, plans can be matured by which specimens of penmanship, drawing, spelling, and other written work from different schools, can be presented in such form as to be attractive to the public. Prizes might be awarded to the school showing the best results reached in accordance with specific regulations. In this way a greater popular interest in education can be excited, a stimulus to do better work in the schools given, and the ingenuity of teachers exercised to devise improved methods of teaching.

"2. That this association encourage teachers and others to present for general inspection at its annual meetings any apparatus or other aids to instruction, whether of their own invention or otherwise. The display now made by the publishing houses is of this nature, and possesses great interest. The enlargement of this feature of our gatherings would bring a corresponding increase of profit.

"3. That this body present to the schools of the state a scheme for their encouragement in pursuing specified studies, the work done by each to be presented for examination at its annual meeting. Certain conditions could be made according to which the schools should present their work, and committees could be appointed to pass upon its merits and give their decision. This undertaking would involve much labour, but the good to be accomplished would warrant the effort. It is possible that the association could award prizes or give some mark of distinction to the schools showing the greatest excellence."

PART XVII.—LESSONS FOR CANADIANS, CHIEFLY EDUCATIONAL
DERIVED FROM THE INTERNATIONAL EXHIBITION

(A LECTURE DELIVERED BEFORE ONTARIO TEACHERS' ASSOCIATIONS, ETC.)

On the 10th of May, of last year, there was opened in the City of Philadelphia, one of the grandest schools of Object Lesson Teaching which any one on this continent had ever seen.

It was great, in the first place, for the comprehensive and striking Object Lessons in National Life, National Geography and National Industry which it taught. Nations and countries which to the ordinary learner from the text book, were as far off and intangible as the fabled land of El-Dorado, or the garden of the Hesperides, were brought into close view, with a distinctness which surprised and amazed him at the reality. Egypt, China, Japan, Russia, Brazil, and the Indies, were thus before his vision, no less in the persons of the bronzed, pig-tailed and almond-eyed natives of the one, than in the men of strange speech and dusky hue of the others.

Then, in the second place, there were the strange and grotesque productions of native skill and ingenuity, with "the barbaric pearl and gold" of the half-civilized nations of the east, mingled with the refinement and elegance of Europe and America.

Again, there was rarely seen in such close proximity and union, such a varied combination of the characteristics of national life and industry, as were here brought out, with the vivid distinctness of a panorama.

In passing up and down the long avenues of the Main Building, there was one thing which specially struck the eye of every Canadian visitor, or that of a Briton, and that was the name and national symbols of our mother-land from across the sea, which, in all the industries and pursuits which render her so famous, was so well represented there. Surrounded as she was, with her noble group of colonies—Africa, Australia, the East and West Indies, and our own Dominion—many of them representing an incipient nationality, and that, too, with all the self-reliance, strength and profusion of material resources which well became the sons and daughters of the foremost empire in the world. It was an impressive sight, full of significance, which was not lost upon our American friends, nor upon the representatives of other nations, gathered there to witness such a brotherhood of Anglo-Saxon and Celtic freemen clustered around their imperial mother. Well might the Queen of such an Empire, like the Roman Matron, Cornelia, point, with a flush of pride, to her noble group of Colonies, in all their glow of youth and manly strength, and say with truth and dignity:—"These are indeed *my* Jewels,"—the only adornments befitting the mother of such a galaxy of youthful nations.

But, among the sons and daughters of this great Empire, none enkindled a warmer glow of satisfaction at her wonderful growth and progress than did the United States of America. It is true that she had challenged a great international comparison of her own industries and skill, with those of the old and renowned countries of Europe, whose age was at least ten times that of hers; and whose industrial skill and resources she knew were almost inexhaustible. But she was on her own soil, and that this gave her an immense advantage.

It is no less true that, having given this challenge, every spring of her ambition as a nation, was quickened, that she should not suffer herself to be worsted in a momentous, though peaceful contest like this which she herself had invited. It was, therefore, the greater pleasure (which was shared in alike by visitors from the United Kingdom and from all the Colonies) to mark how well this eldest of Britain's offspring acquitted herself. It was no less a pleasure to witness the vast proportions to which she had grown during the first hundred years of her national existence, and to see evidences on every hand of how fully equipped she was for this great international contest of industry and skill.

Glancing, too, at the numberless foreign exhibits, which were everywhere so extensive and so prominent, the visitor began to realize how grand a school it was for him in which to learn impressive lessons in regard to the number, extent, peculiarities, social condition, productions, prowess, science and skill, of nearly every civilized and half-civilized nation in the world. It was no wonder, therefore, that visitors to this vast aggregation of the industries, commercial products, and intellectual life of the world, should, on their return home, prove to be the pioneers of hundreds and thousands of others who also came back equally delighted and profited by their visit.

Before dealing with the general details of this great gathering of nations in the New World, I shall for a few moments glance rapidly at the more important of the national and international Exhibitions which had preceded the one at Philadelphia.

The instinct which impels to a national display of prowess or skill, and a local competition for honours and distinction in both, has long been characteristic of semi-civilized and civilized communities. The Olympic games of classic Greece, the chariot races of ancient Italy, and the tournaments of mediæval times, were followed at intervals, and in a more practical age, by the great commercial and industrial gatherings of Venice, Russia, France, and England, bringing them down—but only as national gatherings of a local kind—to the days of the present generation. Thus, the first industrial show, or "trade tournament," was held in Venice in 1208. Subsequently, to facilitate trade between parts of the extensive Russian empire, a great fair had long been held at Macariff, and afterwards at Nijni Novgorod. In 1699, an Exhibition was held at Leyden; in 1756, the London Society of Arts offered prizes for specimens of decorative manufactures, such as tapestry carpets and porcelain. The book fair of Leipsic has long been famous; but it was in 1798, and in France, that the germ of a National Exhibition first developed itself. It grew rapidly there, however, until at length, in the thoughtful mind of Prince Albert, it expanded into the greater idea of a grand gathering of nations, whose contests hereafter, as he had hoped, should be those only which would promote the arts of peace and industry.

Most of us remember the wonderful success of that first great International Exhibition of 1851—the marvellous structure of Sir Joseph Paxton, which arose fairy-like in its proportions, covering twenty acres of land, and lofty enough to enclose within its ample space some of the noble elms of which Hyde Park (where it was erected) was so justly proud. A recent American writer thus recalls the incidents of this memorable forerunner of subsequent International Exhibitions:—

"Novelty and innovation attended the first step of the great movement. The design

of the structure made architects open their eyes, and yet its origin was humble and practical enough. The Adam of Crystal Palaces, like him of Eden, was a gardener. When Joseph Paxton raised the palm-house at Chatsworth, he little suspected that he was raising a structure for the world; that, to borrow a simile from his own vocation, he was setting a bulb which would expand into a shape of as wide note as the domes of Florence and St. Sophia."

The result may be summed up in a few words. Out of 240 competitive plans, those of Joseph Paxton, the head gardener of the Duke of Devonshire was chosen. He himself was knighted by the Queen when he had demonstrated that his fairy-like structure with its firmament of glass overhead had a local habitation and a name—that of the famous Crystal Palace of 1851. The exhibition itself was amazingly successful. It cost about £1,500,000; while its receipts during the five months it was kept open, nearly £2,500,000. The number of admissions was 4,740,000. Out of the surplus £1,000,000 grew the germ of that famous South Kensington Museum, which to-day stands at the head of the many popular and attractive museums of Europe.*

The remarkable success of the London International Exhibition of 1851, acted as an extraordinary stimulant to that class of popular "Expositions" of industry everywhere, so that national and international exhibitions soon became an epidemic. The spirited City of Cork led the way in 1852. Dublin and New York followed suit in 1853; Munich in 1854, and Paris in 1855. Then there was a lull, until Manchester, in 1857, inaugurated a grand "Art Exhibition," which created quite a sensation. After a little breathing space, the international mania for "Expositions," as the French designate them, soon broke out again; and Florence in 1861, London in 1862, Amsterdam in 1864, held successful industrial gatherings, which stirred up such a feeling of emulation and friendly competition on the continent of Europe, that it was at length decided to suspend the somewhat located class of exhibitions which had been held there during the previous years, and to call upon exhibitors from all parts of the civilized world to unite in a grand international gathering worthy of the name 'at the gay capital of France, in 1867. The call was responded to with enthusiasm on the part of about forty countries, which were represented by nearly 50,000 exhibitors. Every conceivable subject, as well as industrial and social interest, as might have been expected, were well represented at this grand exhibition. They were classified into ten groups—the tenth group was, for the first time, in the history of these international gatherings, added to the list of subjects which had a distinct place assigned to them in the exhibition. This group included "articles exhibited with

* In speaking of the establishment of South Kensington Museum and of the new movement in favour of Art Education in England, Germany, France, and other countries, the American *National Quarterly Review* for March, 1877, says:—

"At the first Universal Exposition in London in 1851, England found herself below all other European countries in the production of manufactures involving taste; and the United States alone stood below her. She immediately put forth the most strenuous efforts to remedy this deficiency. The Government made the most munificent expenditures; they formed a new section in the Privy Council under the name of the Science and Art Department, which had for its object the furtherance of science and art applied to industry. The South Kensington Museum was established in 1852, at an original cost of \$6,000,000, and an annual grant from the Government of \$500,000. This is not only a museum, but a school, and the head centre of art education in England. It gives instruction in fine art and industrial art, and educates special fitness for art matters. They also established throughout the Kingdom, in all the important industrial towns, art schools for instruction in drawing, modelling and designing. These schools are supported partly by the Government and partly by local authorities and fees. In 1872 they numbered 122, and were attended by 22,845 students, besides the 765 at South Kensington. They had also 538 evening classes for instruction in drawing to artisans."—(Page 353).

the special object of improving the physical and moral condition of the people ;"—or in other words, the great and most important department of "Social Science," including Education, first received recognition and an appropriate place among those special subjects of national importance which touch more closely than any other, the moral, social, and intellectual well-being of our race.

I do not mean to say that this subject received no attention whatever at previous international gatherings, especially at the great parent exhibition at London, in 1851 ; for it had long formed a topic of earnest interest and discussion at the Social Science Congresses of England, and elsewhere. Nor was it overlooked at Munich, in 1854, at Paris in 1855, or at London in 1862. Far otherwise ; but what I do say is this, that it was only treated as a subordinate branch, fit only to be grouped in with other kindred subjects. But it was otherwise at Paris, in 1867. There, to the credit of Napoleon III. and the members of his Imperial Commission, it was formed into a distinct group. And thus, fitting homage was the first time nationally paid to that great department or out-growth of our Christian civilization, which, under the comprehensive designation of "Education," deals with interests so momentous to the well-being and enlightenment of nations, communities, and individuals.

In speaking of this "new departure," at the Paris exhibition, Dr. J. W. Hoyt, the educational representative of the United States at that exhibition, says :—

"If Napoleon III. had signalized his eventful career by no other shining act done in the interests of humanity, the imperial decree which opened group X, and created 'the new order of recompenses, with a special view to the amelioration of the moral and physical condition of population,' should, of itself, place his name on the page of permanent history in letters of light, and insure to his memory the benedictions of mankind."

And now let us pause and consider for a moment what this act of the Third Napoleon involved. We, on this continent, from the earliest time of British Colonial rule, have been taught to regard education as of inestimable value to a people ; in fact that, as the humble hand-maid to religion, it is essential to their growth and prosperity intellectually, morally, and socially. Our fathers, and the fathers of the noble U. E. Loyalists, the heroic founders of this youthful and prosperous Dominion, (who, as we are told, "were themselves, to a remarkable degree, educated in the schools and Universities of England,") shortly after they landed on the shores of the New World, established schools ; and six years after their arrival (in 1636), gave £400 to establish Harvard College, as a supplement to the Reverend John Harvard's benefaction, and private subscriptions which had been collected. Further, as an instance of their touching zeal on behalf of their beloved college, the colonists of those days gave the rent of the ferry between Boston and Cambridge, to the college ; and once, at least, every family in each of the colonies gave it twelve British pence, or a peck of corn, or its value on unadulterated wam-pom-peage. More than this, the fathers of our heroic U. E. Loyalists, decreed that every Township of fifty families should support a public school ; and when they reached the number of one hundred families, that they should support a grammar school.

To us, therefore, with our loyal and traditional instincts, so alive to the vast importance of education, it was only a matter of unfeigned surprise, that in the first great international gatherings this important interest did not at once receive due recognition, and be placed in the front rank of subjects to be considered and illustrated. But, when we remember that at that time more than one half of Europe did not recognize popular education as a subject of

national importance, and that in other countries it was a matter of subordinate interest, we can well understand the vast significance of its formal recognition at the Paris Exhibition of 1867. The nations had at former exhibitions slowly learned this important lesson, (and it is one of those momentous truths which the thoughtful and sagacious men who took part in them at once perceived and applied,) that those things which are of real practical utility, and are the products of enlightenment, forethought, and intelligent skill, were, in fact, in the truest sense, the result of the labours of the school-master; that the invention and improvement, which are made in the direction of the amelioration and advancement of the social condition of mankind, do not emanate from ignorant minds and unskilled hands, but are the result of that process of intelligent training and systematic culture which reach the masses of the people through the schools. On this point, W. T. Harris, Esq., of St. Louis, in an address before the Massachusetts State Teachers' Association last December, says:—

"In a nation whose boasted self-government claims to rest on free school education of the masses, doubtless its school teachers, had a better right to congratulate themselves upon the general result of the exhibition, and to see exultingly in the vast display, chiefly the result of educated intelligence and skill. They may not be blamed if they saw every where the influence of school education as an essential factor in the quality of versatility everywhere manifested in American skill. They are doubtless right in tracing the same influence of school education in the products of skill of foreign nations."

"From these considerations it is obvious how pertinent have been the studies of our teachers upon the products of machinery in the great exhibition as directly related to the progress of school education. Wherever there is evidence of versatility of skill in the individual workman, or evidence of high directive power, there is equal evidence of school education or its equivalent. This correlation of productive industry with education has been recognized in the most recent of world's fairs."

Even our own Mother Country, with all of her forethought and sagacity, and her late effort to uplift the masses of the people, intellectually, even she found with dismay, that during the interval of her own pioneer exhibition of 1851, and that of Paris in 1867, she had been left immeasurably behind in some of those departments of industry in which she had prided herself, and which required in their treatment a superior intelligence, and an enlightened skill on the part of the workman.

Mr. J. Scott Russell, who was one of the British Judges at Paris, in 1867, on his return to England, wrote a book on this subject, and, in his dedication of it to the Queen, besought Her Majesty to take steps through her Ministers, to arouse the English people from their educational lethargy. Speaking of the rude awakening England has just received, he said, (writing in 1869):—"The last 18 years has been a series of events slowly, regularly, and disagreeably, awakening the nation from a pleasant belief, once a reality, now only a dream. Eighteen years ago there began a series of competitive trials of intelligence and skill between the citizens of the different civilized nations of the world. The first trial in London in 1851, was England's great lesson; the second was the exhibition held in Paris in 1855. . . . Nothing was more striking than the enormous progress nations had made from the first lesson. . . . England was struck by the amazing superiority of some continental nations in the beauty and grace of design which sufficed to convert the rude and nearly worthless material of flint and clay. . . . into invaluable works of Art. . . . The lesson which the French and Germans learnt was of another sort. They felt their inferiority. . . . and they argued thus. . . . The way to compete with England, in mechanical power, is to apply higher science to it. . . . They did so; and in 1855, what we saw was instructive to the clear-sighted and the thoughtful. . . . but did not alarm the English manufacturer. . . . Unhappily therefore they did not take warning in time. They merely committed the common blunder of despising their rivals. . . . This self-satisfaction was a huge blunder. . . . The progress of the French and Germans was an ominous

reality. . . . The third lesson was our own exhibition of 1862, which was humiliating to us.* . . . But the Paris Exhibition of 1867 gave England a final lesson. We were there rudely awakened and thoroughly alarmed. We then learned, not that we were equalled, but that we were *beaten*—not on *some* points, but by some nation or other on nearly all those points on which we had hitherto prided ourselves."

In speaking on the same subject, Hon. Mr. Northrop, in his *Education Abroad*, says:—

"The Universal Exposition of Industry in Paris . . . found a good school for England, and through England for all Europe. The investigations instituted by Parliament and embodied in a report in regard to the failure of England at the exhibition were thorough and conclusive. The epitome of that report was circulated widely in various journals on the continent, and reached Turkey, China, and Japan. Perhaps no report of Parliament attained greater celebrity or exerted a wider and happier influence. It was accepted as a demonstration of the influence of education in promoting individual thrift and national prosperity. Even English reviews and newspapers, and the largest and most intelligent manufacturers, were compelled to admit that Britain fared ill in that comparison of the world's industries at Paris. This was an unwelcome surprise to the nation. Her superiority to all the world in manufactures has been long assumed as unquestioned. The most keen-sighted and practical British observers admitted the mortifying fact that England was surpassed, either relatively or absolutely, by her continental rivals. This was true, not in a few, but in many and various branches of manufacturing and mechanical industry. There was great unanimity in this view on the part of those English 'Jurors' and other observers especially appointed to examine and report the results of their observations."—page 146.

"The evidence of loss of prestige for British manufactures was too clear to be disputed. Leading men and journals at once discussed the cause. There was general unanimity as to the fact itself; and the cause was found to be the absence of technical and general education in Great Britain, and the prevalence of both on the continent."—page 148.

Thus we see that these great international Exhibitions were the first grand levers which were used to uplift the nations to a higher plane of intellectual life, and to demonstrate to them, beyond power of controversy to gainsay, the great practical truth which underlies the

* Mr. J. Asott Russell mentions in this extract that the French and other European Nations took to heart the lessons of these International Exhibitions which England neglected. The steps which France and other nations took, after the London Exhibition of 1862, are thus stated by the American *National Quarterly Review* for March, 1877:—

"In the following year (1863) the Emperor appointed a large and able commission, which was divided into sections, to investigate the subject of technical education in particular. In 1865, this commission submitted an elaborate report, showing what the situation was at home and in all parts of Europe. They declared that *drawing, with all its applications to the different industrial arts, should be considered as the principal means to be employed in technical instruction.*" They made various recommendations, which were acted upon at once by the Government, and the art instruction of France, which had so long been the best in Europe for industrial purposes, was in various points reconstructed and made better still.

"Germany also, notwithstanding her military exigencies during this period of art revival elsewhere, had not neglected her art schools. Immediately after the war with France, the authorities of the various industrial towns of Prussia were called upon, in a circular issued by the Minister of Commerce and Industry, to follow the example of France in the organization of drawing and industrial schools, and their attention was directed to the industrial importance of these schools, and to the fact that they form the true basis of the wealth of France. Regulations in regard to teachers of free-hand drawing and modelling in the industrial schools were prepared at the same time.

"In Austria the movement in favour of art education is even more marked. The Museum of Art and Industry at Vienna is similar to the South Kensington Museum in England, and exerts an equally beneficial influence over the other schools of the country. But it is needless to speak of each country; the impulse has been universal throughout all Europe within the last twenty-five or thirty years, and everywhere the most generous provision is being made by the various Governments, and new art schools, new museums and new regulations are everywhere established.

"These movements, the reviewer goes on to say were, 'observed by thoughtful practical men' in the United States, 'who in Massachusetts petitioned the Legislature to take action . . . and, in May, 1870, a law was passed' . . . in which drawing was 'required to be taught in the Public Schools, and also requiring every city or town, with over 10,000 inhabitants, to provide annually for *free instruction in industrial drawing.*' . . . In 1875 a similar law, relating to drawing in Public Schools, was passed in the State of New York."—(Pages 351, 355.)

trite maxim which we all understand, that "*knowledge is indeed power*"—power, which is irresistible—power, which endows delicate, and even complicated machinery, almost with the instincts of life—power, which, with unerring penetration and force, seizes upon salient points; and, by controlling, turns even opposing forces into obedient servants of a superior will, purpose, and design.

No wonder, then, that when at former exhibitions the practical power of a superior intelligence had demonstrated itself to be a superior reality, even in the material things of every-day life, the representatives and the official head of a nation which had taken the lesson to heart, and had profited by it, should publicly and officially declare that this great branch of social science (education) would receive hereafter that consideration which was due to it as a national interest of the highest moment, and be accorded that status which its supreme importance demanded.

In this group thus officially recognized, there were nearly 1,200 exhibitors, less than 150 of whom received prizes; but the impetus given to the cause of education and social science was incalculable. As an evidence of this, and of the increased interest in International Exhibitions, I may mention that the covered area of the Paris Exhibition embraced forty acres of ground—that is, twice the covered area of the London Exhibition of 1851; the number of admissions during the 217 days it was open was over 8,805,000, and its receipts approached \$2,250,000.

The next great Exhibition held was at Vienna, in 1873. It was in all respects a notable success. Speaking of its educational features, the American Commissioner, after referring in high terms of the act of the French Emperor in first giving education a marked prominence in the Exhibition, says:—

"But it was reserved for the Emperor of Austria to give special prominence to this department by honouring it with the rank of a 'group,' [to itself] and by making special efforts to insure such a representation in that group at Vienna, as would promote the advancement of education throughout the world."

In this he was not disappointed; for the result was that the number of exhibitors at Vienna, in education alone, was nearly 4,000, as compared with 1,200 at Paris, while the number of educational awards given was over 1,000. The exhibition buildings themselves covered an area of about fifty acres, and during the 185 days it was open the number of admissions was nearly 7,000,000, while the receipts were only \$1,032,385.

We come now to the last great International Exhibition, designed to celebrate the Centennial of American independence. It was, on the whole, a much greater success than any of its predecessors. The area covered by the Crystal Palace at the London Exhibition of 1851 was twenty acres; at Paris, forty; at Vienna, fifty; and at Philadelphia, about seventy-four acres, or an area of half as much more as that of the largest of the European Exhibitions. It was open about 160 days, during which time there were 9,910,996—that is, nearly 10,000,000—admissions at the gates;—one day alone the number reached the enormous number of 268,653—that is, nearly 300,000—people. The receipts of the Centennial Exhibition reached the enormous sum of \$3,813,749, or almost \$4,000,000. The total cost of the Exhibition was, in round numbers, about \$8,000,000.

Before attempting to draw a few practical lessons of instruction from this wonderful gathering of nations at Philadelphia, I shall take a rapid glance at the great features of the Exhibition itself. The statistics which I have just given will enable those who were not

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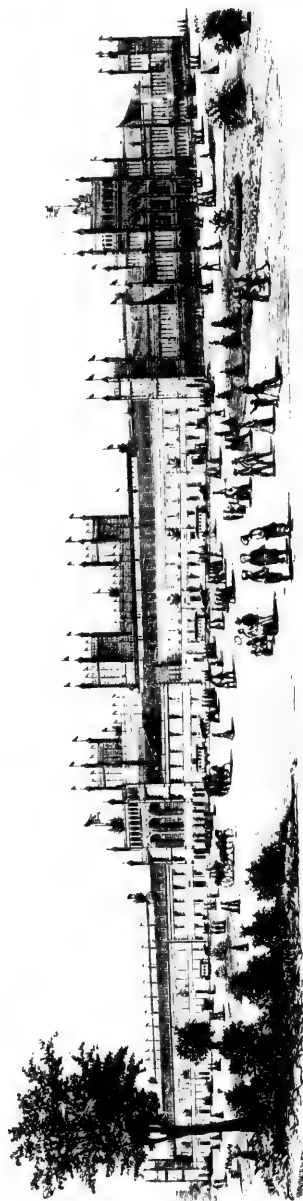
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THE MAIN BUILDING. - CENTENNIAL INTERNATIONAL EXHIBITION. Page 233.

there to realize somewhat of the magnitude of that vast sight which it was their loss not to have seen. To those that were there, it will simply serve to recall that wonderful sight, which will long remain imprinted on the memory.

The whole area enclosed for the Exhibition, by a fence three miles in extent, was 236 acres. The spot chosen was one of the most beautiful and elevated portions of Fairmount Park. Within the enclosure were five immense structures, and about one hundred and fifty others of various sizes. It would be impossible, in this brief paper, to do justice to the magnificent sight which the Exhibition—its buildings and grounds, presented on one of those exquisite mornings in the lovely and “leafy month of June.” Both seemed faultless in their magnitude, elegance, grace, and beauty, as they struck the eye of the beholder in looking on that grand and gay scene for the first time. Not that they were in reality faultless. A critic, were he an architect, might have found endless faults and violations of professional taste in the individual buildings, and even in the grounds; but to the general visitor—even one of refinement and culture, the impression made was one of gratified surprise and pleasure. Indeed, the general feeling shared in by the ordinary visitor was, that the sight more than realized even childhood’s dreams of fairy-land. It was a question whether the *coup d’œil* or “bird’s-eye view” of the grounds and buildings from the Horticultural Hall (including the Hall itself), could be easily surpassed—the construction of all that was lovely, with all that was striking, gay, and picturesque, was marvellous. And then, the vastness of the “material” of the Exhibition—the articles comprising which might be counted by millions, while the number of miles required to be traversed in order to see them all, was officially stated to be at least 25. W. T. Harris, Esq., St. Louis, in an address before the State Teachers’ Association, of Massachusetts, in December last, thus speaks of the vastness of the Exhibition :

“The mass of commodities displayed at Philadelphia, on either side of the avenues, aggregating to hundreds of miles, was simply too vast for the inspection of one individual. If he managed to get over ten miles of the exhibit to-day, and the same amount to-morrow, he still had the prospect before him of six times as much more awaiting his attention, and what mortal was strong enough to hold out for half this work? His powers of attention and observation were completely dissipated by the time he had visited the Exhibition for three days. I do not speak of the comparatively few visitors who had seen other National Exhibitions, and had become familiarized with such scenes—but millions of our fellow-citizens went away from Philadelphia with a new experience—a new conception of the might of the social whole in which they had grown up, and a deeper realization of the purport of the civilized world, whereof our nation forms only one member. It is true; the collection of industrial products there made was only a merest fragment of the total wealth of this nation and as other nations, but the value was symbolic, and the transcendent magnitude of what was there, elevated the thoughts toward the not visible sources that lay beyond.”

I shall not venture to describe this grand Exhibition. In many respects it was indescribable. It had to be seen in all its complete magnitude and greatness in order that it might be realized; but even then, the eye and the mind, and the memory failed to take all in. Its variety and combinations seemed so endless, that the ordinary visitor became bewildered, and gave it up in a sort of pleasant despair. Even those who thought they could, and thought they did, master the details of the Exhibition, in ten days or two weeks, came away with a painful sense of the fact that there were hundreds of things which they had not seen; while the impression left on many minds was in reality that of a confused array of beauty and elegance, vastness, and variety, mingled together in a remarkable manner.

I shall not, therefore, venture to describe the Exhibition. I shall content myself with a rapid glance at its salient points as a whole.

The main building was of course the Mecca to which the feet of all pilgrims first turned. It covered an area of 22 acres, and contained an endless profusion of some of the most valuable and costly things from the atelier and workshop, the loom and the laboratory, the printing press; and I may say in a word, the product of the mind and intellect of the principal civilized nations of the world. There the oldest nation met the youngest, and exchanged their greetings. Egypt, China, and Japan, with their modern semi-civilization in antique dress, were there side by side with the young and flourishing colonies of England, and the newest States of the vast Republic, whose first 100 years of existence they had come thousands of miles to celebrate. There too, were evidences of the refinement of France, with examples of the solid excellency of Germany.* The decaying vigour of Spain was paralleled by the *opete* youth of some of the South American countries. Sweden, Holland, and Belgium, no less than Switzerland, Norway, and Denmark, were worthily represented;—while Russia, Austria and Italy, of the old world had their counterparts in Brazil, Canada, and Australia, of the new. It was indeed a wonderful combination; and yet the several tableaux presented a striking series of contrasts, even where you least expected to find them. Take the example of China and Japan. In the popular mind, there is but little difference between these nations. And yet the difference is remarkable, and it was brought out in strong contrast at Philadelphia,†

The exhibit from Russia was in some respects remarkable—especially the educational features of it, which, I may say, surprised everybody. It was expected that in malachite, platinum, rich ores from Ural mountains, furs and other productions of that vast Empire, Russia would have excelled; but in the matter of popular education it was not thought that she had taken any special interest. Yet it was far otherwise. After the emancipation of the serfs in Russia by the present Emperor, in 1861, he set himself, with the aid of wise counsellors, to lay the foundations broad and deep of a comprehensive scheme of Education. So energetic was the movement, that in a few years about 10,000 primary schools were established for the instruction of the masses. We do not require to seek far for the causes of this wonderful progress. The final issue of the Crimean war taught the sagacious Russian a terrible lesson. It taught that proud and self-reliant nation at Sebastopol, as it did the self-confident Austrians at Sadowa, that the physique and courage of the uneducated soldier, when armed with the most deadly weapon, were as nothing when opposed to the skilful fingers and enlightened bravery and forethought of the comparatively educated rank and file of Britain or Prussia.‡

Prussia, France, and Austria, were nobly represented in the Main Building, in all of those things in which each of them excelled. England and her sister kingdoms, with an enterprising group of colonies surrounding them, contended with the various States of the

* The American *National Quarterly Review* for March, 1877, in accounting for the refinement and elegance of French works of art and skill, says:

"Not that the French, as a people, are endowed by nature with more genius; not that they were born originally with a keener perception of the beautiful than the people of other countries, but because for centuries they have fostered and cultivated the artistic taste and skill, not only of their designers and artisans, but all classes of their people by art schools and museums. As has been truly said, that *her drawing school is the true basis of her wealth and prosperity*." (Page 351).

† I have specially referred to this contrast on page 82 of this Report.

‡ See page 65 of this Report.

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MACHINERY HALL. - CENTENNIAL INTERNATIONAL EXHIBITION. Page 233.

Union for supremacy in arts and industries common to both ; while the Dominion of Canada did her share with the mother country in maintaining a vigorous effort for that supremacy.

And here I would quote the following tribute which General Walker, Chief of the Bureau of Awards, pays to our mother country. He says :—

"Of all foreign countries Great Britain was foremost in the completeness and the cordiality with which the invitation of the Centennial Commission was met. The regrettable speech in which Senator Sumner urged that England would resent being asked to participate in a celebration of her own humiliation and defeat, would appear to have appealed strongly to the manhood of that noble nation. In every way and in every place the official representation of Great Britain at the Centennial of American Independence, whether in the Fairmount Park or at Independence Hall, on July 4th, while the grandson of Richard Henry Lee read out the declaration, and the bands played Yankee Doodle, was thoroughly worthy and dignified. The British Commissioners bore themselves, from first to last, as if they had a warm interest in the success of the exhibition, and rendered to the Administration a hearty and sympathetic support on every occasion of embarrassment or difficulty. To say that the conduct of the 'mother country' was complimentary to the United States, is to say the least thing that could be said. It was more and better. It was honourable to herself, and did honour to the community of nations."—*International Review* for May-June, 1877.

Again, he says :—

"The bearing of the English judges was above all praise. The names of Sir Charles Reed, Sir William Thompson, Dr. John Anderson, Captain Douglas Galton, Mr. Lowthian Bell, Sir Sydney Waterlow, Sir John Hawkshaw, Major W. H. Noble, and their distinguished colleagues, were a sufficient guarantee of the ability with which their duties would be performed ; but it was not to have been believed that any body of men could so utterly have discharged themselves of all national prejudices, to enter with such impartiality, such cordiality even, into the examination of the very products in which the United States are pressing England with the severest competition, frankly recognizing every good thing, from whatever source it came, and oftentimes surprising their American colleagues with the fulness and the heartiness of their commendation of processes and products familiar to us."—*Ibid.*

The next great attraction at the Exhibition was the famous Machinery Hall. This vast hall covered fourteen acres, and was, on the whole, with its wonderful contents, one of the greatest marvels of the Exhibition. The first desire of every intelligent visitor who entered it was to pay a willing homage to the genius displayed in the construction of the great Corliss Engine—that grand monarch of the hall, who was enthroned in the midst, and who seemed so endowed with life and power that when he moved the vast hall was instinct with life and industry, and when he was silent all was stillness and repose. In regard to this magnificent product of man's skill, I shall quote a few words from an article in the *Revue des Mondes*, written by one of the French Commissioners :—

"The vertical steam-engine, says he, of 2,500-horse power, was constructed by Mr. Corliss, of Providence, R.I., on entirely new principles. The total weight of the metal was about 700 tons, and it required sixty cars, carrying over ten tons each, to transport it from Providence to Philadelphia. The transportation alone cost \$5,000, and the machine itself is valued at \$200,000. The whole was constructed and put in motion in less than ten months. All the parts were so well supported, the equilibrium so exact, and the movements so well calculated, that no tremor was produced ; all appears to work as delicately as the mechanism of a clock. By the confession of competent machinists, it is declared to be the most remarkable machine in Machinery Hall, and one of the greatest curiosities—perhaps the principal, of the whole Exposition."

I can scarcely refrain from referring in this connection to the hydraulic annex. Here (a Philadelphia paper says) were all kinds of pumps, rams, and blowing apparatus. There was also a great iron tank supplied with water, from which, in a beautiful sheet of water forty feet in width, a flood came dashing down into the reservoir. Overhanging the

immense tank were a dozen or two of large pipes, connected with steam-pumps, from which streams of water were constantly flowing; while others sent their streams the length of the tank in graceful curves. Here and there the streams bisected each other, forming showers of spray, and immingling and intermingling in beautiful confusion.

The United States Building was the next great object of interest. It contained one of the most remarkable and unique collections at the International Exhibition.*

The Memorial Hall, or Art Gallery, and annexes were indeed an art world in themselves. The building which was a noble one, was erected by the State of Pennsylvania and the City of Philadelphia, at a cost of \$1,500,000, and with the annex covered an area of two acres. The two together gave nearly 140,000 square feet of wall surface for paintings, and 25,000 square feet of floor space for statues.

So bewildering is the array of choice pictures and statuary of all kinds, that, as an American writer, Honourable Mr. Wickersham, on the subject says:—"Mere words must fail to give any conception of the fulness and variety of the collections in Memorial Hall and the annex."

We agree with him; and insert the following tribute which this writer pays to the British exhibit:—

"Among the nations, Great Britain takes the lead in her display of paintings. It far surpasses those at the French exhibition of 1867, and that at Vienna in 1873. England does not come to sell her wares; but from the Queen to the Commoner, our motherland takes down these pictures from her walls—many of them of almost priceless value—incur the risk of damage in shipment and from handling, and generously loans them to us for half a year."

Two other buildings and their contents deserve notice. They were the Agricultural Hall and the Woman's Pavilion, both full of innumerable objects of great interest. Of special exhibits there was the French national display of her public works, a remarkable collection of beautifully furnished models of bridges, viaducts, aqueducts, lighthouses, jetties, dikes, canal locks, railroad depôts, government maps and charts, etc.† The other special exhibits were the carriage annex, the Kansas and Colorado display, the glass manufacture exhibit, etc. The other most notable buildings on the grounds, were the Judges Hall—a handsome structure in which all the public meetings connected with the exhibition were held—the Photographic Art Gallery, in which the choice photographic pictures of various countries were exhibited—the Shoe and Leather Hall, in which leather in all its forms and adaptations was displayed—the Pennsylvania Educational Hall for the State collection—the Swedish School-house, the Kindergarten School-house—the British Pavilion, or St. George's Hall, the Japanese Bazaar, New England hog-house, besides restaurants, and a number of handsome buildings for private or special exhibits.

In this connection I would not omit one of the chief conveniences of the Exhibition. I refer to the miniature Railway, which conveyed its thousands of passengers per day around the spacious grounds of the Exhibition "with safety and despatch."

Of the National Buildings erected on the grounds, St. George's Hall, for the British and Canadian Commissioners, in the quaint Elizabethan style, was the most striking; then the German Government buildings, the French, Spanish and Swedish buildings, all of them very handsome—the Canada Timber house, and seventeen others,—very neat and picturesque structures for the seventeen American States which were represented at the exhibition.

* For a description of this collection, see page 84 of this Report.
† See page 101.

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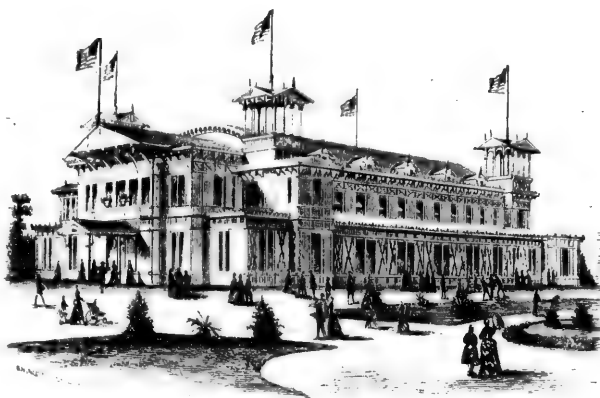
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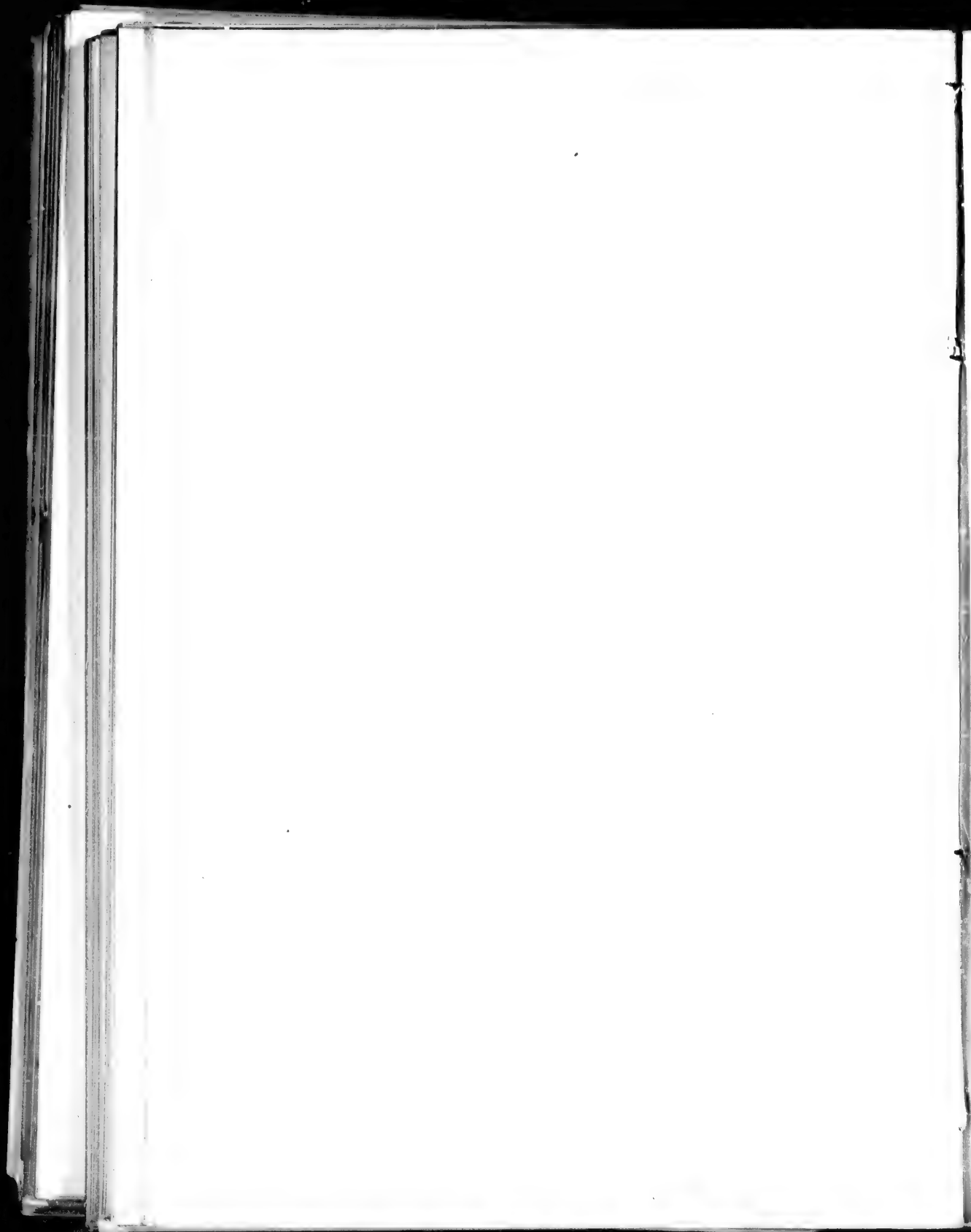
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THE PENNSYLVANIA EDUCATIONAL HALL - CENTENNIAL INTERNATIONAL
 EXHIBITION. Page 236.



THE JUDGES' PAVILION - CENTENNIAL INTERNATIONAL EXHIBITION.-- Page 236.



Such is a brief and summary sketch of that most interesting and most successful exhibition at Philadelphia. But yet, I feel that I have given but an imperfect idea of one of the most wonderful sights of the world's industry, skill, intellect, and ingenuity which it has been our privilege to behold.

The incidents of that remarkable exhibition deserve a passing notice.

It is estimated from official data, that in coming and going to that grand gathering, not less than 20,000,000 of passengers were "moved"—chiefly on railroads through the continent. To this vast multitude no disaster occurred, and scarcely a single life was lost. On one day about 638 passenger trains ran in and out of Philadelphia, with nearly 3,000 cars and their living freight, and not an accident occurred to any of them. Admitting that unusual care was exercised by the railway officials on these roads, yet so wonderfully were these things overruled by the good Providence of God, that the fact was the theme of constant remark; and it called forth over and over again the expression of devout thankfulness for so remarkable an instance of God's goodness and preserving care.

Returning again to the exhibition itself, the question may well be asked by many who were not there. "Well, your sketch of the vastness of the exhibition may be very true, and the facts which you state may be interesting, but—*cui bono?*—what is the real practical value of such exhibitions, involving as they do expenditures of millions?" In answer to this reasonable question I will give you the result of the observations of a most experienced man on this subject. I refer to one of the most able and accomplished, the Austrian Minister at Washington (Baron Van Schwarz Senborn). In an address on the subject he says:—

"I am an old exposition man. I was appointed by my Government as Commissioner to the exposition in Leipsic, in 1850. I was Commissioner to London in 1851; then, again in London at the exposition of 1862. I was at Paris as Commissioner, and class President of the jury at the exposition of 1855, and assisted also at the Paris exposition in 1867, lately, while I was Deputy Consul-General of Austria-Hungary, in Paris, I was called to Vienna by His Majesty, my Emperor, to plan and superintend the Universal Exposition of 1873, in that city. As director-general of that last exposition, I was more strongly convinced than ever that universal expositions are the very best of schools."

"I have been travelling for thirty years, and I have found that the impression gained in travelling is one of the best means of obtaining an education. I think a universal exposition is also like a journey; but with this advantage, that you see in a few hours, and at a trifling expense, that which would ordinarily take years of travelling and a great outlay of money to learn.

"A man thirty or forty years of age cannot go to school; but he can be instructed by eye-sight, or object teaching, such as is afforded by the exhibitions and other similar means. One of those means I first referred to is travelling. What is travel? Travel is education. You learn many things in travelling by observation. You are taught in that way. Therefore, this is object-teaching. A great German *savant*, Professor Virchon, made a very interesting and a very accurate remark which applies here. He said that 'nothing which ever comes through your eyes into your head ever goes out.' And so say I. The impressions which we obtain by the sense of sight, affect the brain and change our views in the most favourable manner. That was the meaning; and the man who has seen many things, who has travelled a great deal, will have his intellectual faculties greatly improved. We observed in Austria, as well as in other parts of Europe, another striking effect of these exhibitions. They improve in a remarkable way the public taste."

The Honourable B.G. Northrop, Secretary to the State Board of Public Instruction, in Connecticut, in speaking of the great benefits of the Centennial Exposition, says:—

"Travel is an important means of education. Personal observation gathers the most striking materials for investigation and reflection. But the Exposition, like an ex-

tended panoramic tour, epitomized to the many, the lessons which a trip around the world amplifies to a few. In a brief time, and at comparatively little expense, it showed many millions of people what it would have cost each one months, if not years, to learn by travel alone. It was also a school of fellowship and good-feeling. The intermingling of our people from the north and south, the east and west, meeting on common ground, forming new social ties, strengthening old associations, kindling patriotic fervour, and fraternizing all, was a timely antidote to the repellant influences of an intense political struggle.

"The intermingling also of representatives of the great civilized and semi-civilized nations of the globe, meeting on the common ground of sympathy with the progress of humanity, each nation willing to impart, and anxious to receive, all more or less prompted to deeds of national generosity, and all mutually revealing and discovering new traits of excellence, was of incalculable value in disposing the people of the world to international peace." Further he says:—

"This Exposition has broadened the views of millions. It was to them the world in miniature, where they gained new ideas of the achievements of modern civilization. While examining the productions of almost every nation of the globe, they breathed a cosmopolitan air, a healthful corrective of conceit, narrowness, prejudice, and exclusiveness, enlarging each one's acquaintance and sympathies, and making more real the great brotherhood of the human family."

LESSONS TO BE LEARNED BY CANADIANS FROM THE EXHIBITION.

We shall now consider a few lessons which I think we, as Canadians, might profitably learn from this great Exhibition.

Self-Reliance.—The first lesson which we as a young country should learn, is that of *Reliance*. A few years ago we would not have ventured to enter into competition with the United States, or other nation, in any department of industry or skill, or even as an agricultural country. The success of Canada, however, at the first great International Exhibition at London, in 1851, was not competitive; but the extent and variety of the mineral and agricultural resources, which she then displayed, greatly encouraged her to make further efforts to develop these resources. At Paris, in 1855, she again made a creditable display of her ability and resources; but, not at all equal to what she might have done, owing, I think, to the absence of that very quality of self-reliance and enterprise which are so very desirable in a new country.

Self-respect as a People.—The second lesson which we should learn from this Exhibition is *Self-respect*. I mean self-respect in its highest sense—as a people. It has been too much the habit, on the part of some amongst us, to disparage Canada as Canada, and depreciate ourselves as Canadians. Not that I would for one moment say that, under any circumstances, should we indulge in any undue or idle boasting, or fancy that we were superior to other communities; but that is a very different thing from ourselves regarding and treating our country and its institutions with honour and respect. There is a tendency, in a land of mixed nationalities like ours, for the lofty Englishman to look with a patronizing air upon Canada; for Scotchmen to carry from the heathy hills and secluded glens of "Auld Scotia," the feeling of national clanship, so far as to isolate himself somewhat in feeling from the land of his adoption; and for Irishmen to bring with them across the sea the strong difference of creed, and social separation which prevail in the green old isle. In the face of these and other adverse influences, the native born Canadian finds it often difficult to assert his national manhood; and he is too often disposed to depreciate his

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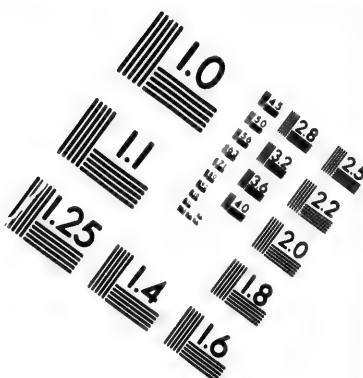
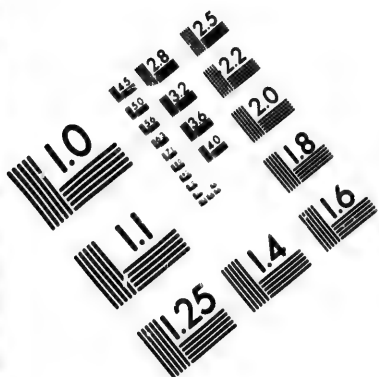
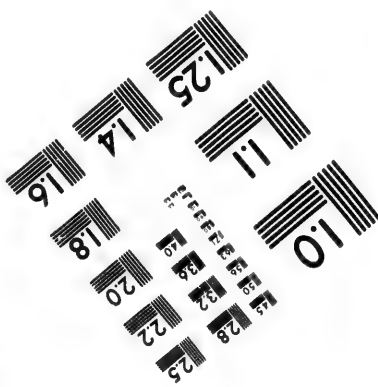
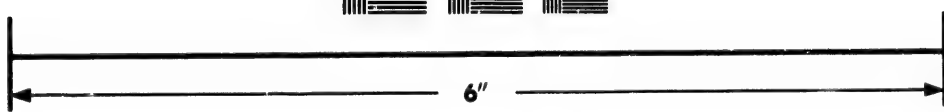
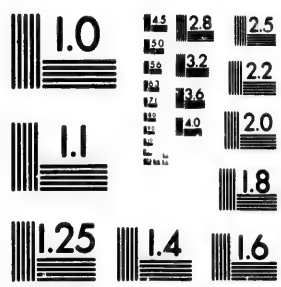


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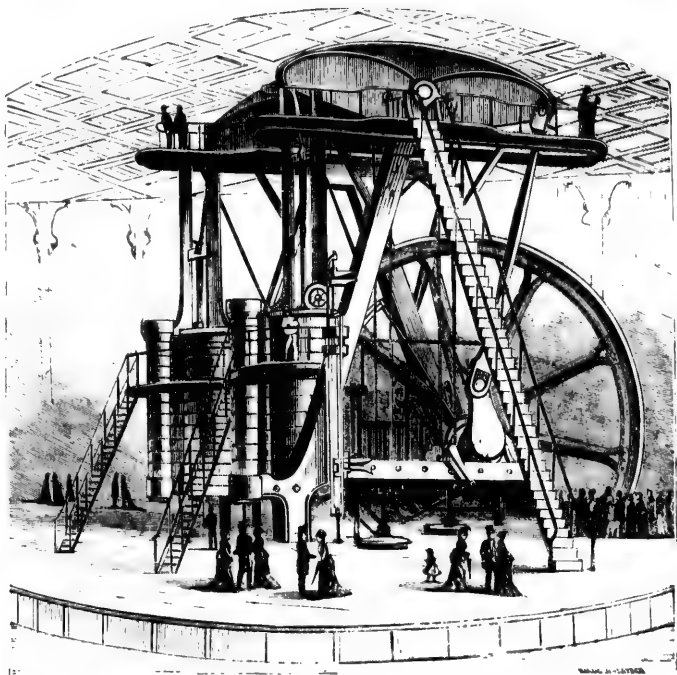


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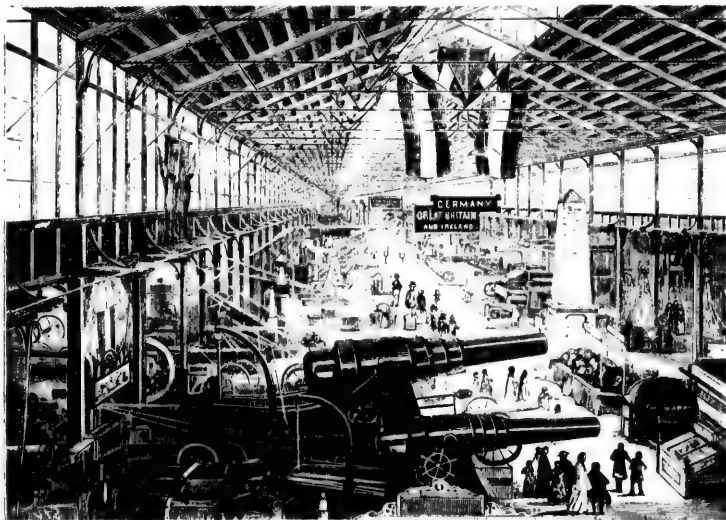
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THE CORLISS ENGINE. MACHINERY HALL. CENTENNIAL INTERNATIONAL EXHIBITION. Page 239.



GENERAL VIEW OF THE INTERIOR OF MACHINERY HALL.—KRUPP GUNS. CENTENNIAL INTERNATIONAL EXHIBITION. Page 239.

own country, and even to affect to believe that she is indeed inferior to others. It is true that this feeling will gradually disappear when our population becomes more numerous and more homogeneous; but, in the meantime, it has a depressing effect upon the growth and development of the right kind of patriotic feeling in regard to the Dominion, at a critical stage of its history.

It should, therefore, be a matter of sincere congratulation, that, in no spirit of boasting, we can refer with unaffected pride to the confessedly high position which this Province, and this Dominion, took, even as competitors, at the recent International Exhibition at Philadelphia. In regard to the rank which the Dominion took at the Exhibition, General Hawley, the President of the United States Centennial Commission, at a public reception of the Ontario School Inspectors and Teachers, said:—

"Canada has done more for the success of the Centennial Exhibition than any eight of the States of the American Union, with the exception of Pennsylvania and New Jersey."

That she did so is attested by the gratifying fact that she secured hundreds of awards from the American and Canadian Commissions—the Canadian on the award of British Jurors. These facts should make us feel proud of our country, and tend to develop, all the more steadily and certainly among us, as a people, that feeling of self-respect towards our own country and its institutions, which after all lies at the foundation of all genuine patriotism towards Canada, and true loyalty to the Queen.

Pledged to Progress.—The next practical lesson which we should learn, arises naturally out of the two preceding ones. It is conceded by all parties that Canada occupied a very creditable position at the recent Centennial Exhibition—that she developed industrial, physical and mental resources which were a surprise to many and, I believe, a gratification to all. She has, therefore, voluntarily assumed a position from which she should never recede. In none of her industrial, any more than in her intellectual and mental activities, can she stand still. Canada, therefore, by her recent successes at the Centennial, is pledged to higher achievements, and more substantial progress. She must, therefore, prepare for it. We as a near neighbour, are for 1,000 miles lying alongside of an active, enterprising people, who are sure to keenly scan their relative position at the Exhibition and their defects, and to promptly supply a remedy where a defect is proved to exist. We must, therefore, be up and doing. We must look closely to our future, and to the means by which we may hope to maintain our comparatively high position. In connection with this subject, a fifth lesson suggests itself, and to my mind it is the most serious and important one of all.

Industrial Art and Invention.—Every thoughtful Canadian who visited Machinery Hall, that rich and wonderful collection of the examples and evidences of man's inventive skill, which, under the magic influence of the great Corliss engine, seemed instinct with life, one would naturally ask himself two questions:—1st. "Among what nations, and by what processes were these wonderful results brought about—the evidence of which surround me on every hand and in every variety of form?" 2nd. "What is Canada—what is Ontario—doing to produce similar results?"

In answering the first question, two remarkable and striking facts present themselves.—1st. That the whole of the amazing variety of wonderful and ingenious machines and appli

ances with which the Hall is filled (most of them designed to enlighten the burthen of toil, to ameliorate the condition of social life, or to promote the comfort and happiness of mankind in endless ways) was the product of Christian Civilization; and 2nd That neither China nor Japan, Egypt or Turkey—non-Christian countries—contributed anything of value in that direction.

In answering the second question, we admit that Canada in that Hall was represented by many ingenious evidences of industrial skill; but most of them were rather striking adaptations of what already existed, than bold and original inventions; that they were rather ingenious imitations, rather than as a whole, careful elaborations of scientific principles, indicative of enlightened forethought and skill. To the casual observer of these facts, the subject may be dismissed by the reflection.—“Oh yes, what you say may be true, but we are a young country and cannot be expected to compete with older and more advanced countries.” “Canada has done wonderfully well, as all will admit.” To the former I say no. In these matters a country with our advantages is never old or young. In this department Canada—and I am among the last to admit it—is woefully deficient, and is doing little as yet to ensure progress or practical excellence in the future. I speak advisedly when I say so. I speak from the result of my own careful observation and experience gathered up at the Exhibition. I take you with me so to speak, to the educational work-shops of each nation, to the educational exhibits of the 20 or 30 States and countries represented there, and examine into the processes, as well as subjects of instruction in the schools of these countries—the evidences of which are so abundant before us. We see that while the ordinary branches of study are never lost sight of, the subject of elementary industrial training is carefully provided for—that in various European countries, as shown by the extracts which I have given from Mr. J. Scott Russell's book, it occupies a prominent place in all of their systems of public instruction.

The Hon. B. G. Northrop, of Connecticut, speaking on this subject, says:—“The Paris exposition of 1867 . . . proved a good school for England, and for all Europe. The evidence then presented of the relative decadence of English manufactures was a surprise to the nation. . . . Practical observers and even Parliament were compelled to admit the fact. . . . The elaborate Parliamentary Report “on the Causes and the Remedy” . . . led to the expansion of the South Kensington Museum, and the organization of numerous schools of art and industrial drawing throughout England, as well as the new measures for popular education.” Nor was the lesson lost upon the United States herself; for the *American National Quarterly Review* for March, 1877, speaking of the effect in the United States of these industrial art movements in Europe, says:—

“These movements have been observed by a few thoughtful, practical men in this country, who in Massachusetts petitioned the Legislature to take action in the matter for that State, and in May, 1870, a law was passed including drawing among the branches which are required to be taught in the public schools, and requiring every city or town with over 10,000 inhabitants to provide annually for free instruction in industrial drawing. A few years later, or in 1875, a similar law relative to drawing in public schools, was passed in the State of New York.”—page 355.

Thus we see that the teaching of the elements of drawing in these two important States was made obligatory; while in the educational exhibits of nearly every one of the States represented, not only was there evidence that drawing is generally and systematically taught in most of the schools, but in many of the cities, the elements of industrial art also. Besides,

scattered all over the Union, technical and other science schools abound. Mr. Harris, City Superintendent of schools in St. Louis, speaking on this subject, says :—

"It is worthy of remark that this general introduction of drawing into the public schools is directly traceable to the influence of the previous world's fairs. The inferiority of English ornament, as discovered in the London fair, in 1851, led to the foundation of the South Kensington museum, and ultimately to hundreds of art-schools to train the taste and skill of its artisans."

In speaking of the effect of the introduction of drawing into the schools, Mr. Harris proceeds :—

"It is a strange thought that this simple change in the course of study in our common schools, making industrial drawing a regular branch of study, and laying great stress upon it, will be sufficient, after a few years, to modify the national character. Hitherto, the Anglo-Saxon character has been the dynamic—if I may use the expression—given to dealing especially with dynamics; a race that most distinguishes itself in inventions that develop and direct vast natural forces for useful purposes. It is the race that cares for use rather than for beauty, and its dreams as well as its waking thoughts are given to the dynamic aspects of the world. But drawing deals with form and with light and shadow—external seeming—appearance. This is the opposite of the dynamics. . . . To cultivate the faculty of observation of external form is perforce to neglect the observation of the strength and force involved. . . . However this may be, there is an interesting line of observation open to educators and sociologists at future world's fairs in tracing the action of the study of form in the nation's schools upon that of mechanic invention, and in instituting a comparison in this regard with the French and German productions."

While, therefore, our immediate neighbours have profited by the example of other nations, as illustrated at the world's fair, we have been, to all intents and purposes idle. Even in our best schools the teaching of drawing is the rare exception, not to speak of higher industrial art training. For instance, in our 104 High Schools and Collegiate Institutes the elements of drawing is reported, in reply to a circular on the subject, to be only taught in eleven or twelve.*

Elements of Drawing and Natural History, &c.—Let us at this point stop to inquire what is the national importance which has been attached to the introduction, even compulsorily, in some countries, such as Germany, the United States, &c., of elementary mechanical and industrial drawing in the primary schools. Little less important is the introduction of the elements of natural history and science in the schools.

We shall not now stop to inquire into the justice to the schools generally, or injustice to the individual pupil, of a system of instruction which would exclude all but the three R's from the primary course of study. But it is manifestly unjust to very many boys who have as yet an undeveloped taste for scientific and mechanical pursuits, and a great loss to the interests of the country to do so. Take the subject of elementary science, for instance. Boys are naturally curious and observant; and it is a great misfortune to them early in life not to turn such instincts to practical account and utilize them for the benefit of themselves and others. Thousands of young men would in after life, under God's blessing, be saved from many a snare and temptation were their undeveloped tastes and instincts directed into such simple scientific channels as these while at school. Many an

* "A great deal has been said by the enthusiastic for drawing in Public Schools, about draughting, designing, &c., in a way to lead the careless observer to suppose that special training in these departments in the Public Schools is desirable. This is not the idea or intention of those most judicious in art education; on the contrary, their aim is to give in elementary schools the first laws and principles of art, with sufficient practice to lay the foundation upon which the specialties of any of the various art pursuits may afterwards be built."—*American National Quarterly Review* for March, 1877, page 356.

"idle hand" would be saved from the "mischief" to which they are so prone, and many a valuable contribution to scientific research might thus owe its first idea to the stimulated curiosity of a school boy in many of our rural sections. That this is the feeling in other countries may be gathered from the fact that in England, France, and Germany, the ingenuity of manufacturers has of late been largely directed to the preparation and construction of the numerous scientific toys for school purposes which are now so largely used in these countries. Few persons have any idea of the scientific ability that is devoted to their production. It is also little known the extent to which scientific principles which should be explained at school enter into the construction of even ordinary toys. The kite, the spinning-top, the common leather-sucker, and others, form the most lucid examples of many of the fundamental principles of science that have been used for purposes of instruction by the best teachers, both in their lectures and their writings. No man ever succeeded more perfectly in making science popular and simple, both with old and young, than Sir Michael Faraday, and those who have read his published lectures will remember that no man ever used scientific toys more freely as illustrations. Of late years the tendency has been to embody the highest mechanical and scientific knowledge in their construction. Chemistry has been laid under contributions for serpents' eggs and other strange devices, while mechanics have given us various automata and other amusing objects. The influence of this tendency upon the minds of the youth of the present day can hardly fail to be most beneficial.

Again, in regard to the elements of Natural History, it has long been thought by the most experienced educators, wise and judicious to cultivate a spirit of local inquiry and observation in boys and young people in our schools. In the opinion of many scientific men (as expressed by Agassiz), it is there the true educational idea of museums is suggested, and there it should be stimulated and fostered in our schools in every possible way. There is no reason why in certain localities in Ontario, where fossils and minerals are abundant, the pupils should not be encouraged to make small collections for their schools. Whether the pupil can sufficiently appreciate the distinction between the specimens he may collect, so as to classify them, is not so material at first. He would naturally separate the different kinds he would collect; and under the direction of the teacher he could arrange them all nicely on the shelves of the little school museum. In every locality objects of natural history, such as Beetles, Insects, Leaves, Flowers, &c., &c., might be collected in their seasons on Saturdays, and arranged for the amusement and instruction of both pupils and teachers. It is surprising too, how rapidly these small school collections grow, where the interest of the pupils in such matters is stimulated and encouraged by an intelligent teacher, aided by the trustees. The promise by the latter of such a prize as a Pocket Microscope, a Magnet, a Prism, a Compass, or other Object, would have a wonderful effect upon the industry of a many now undeveloped "insect hunter," and leaf or wild flower gatherer, and would lay the foundation possibly, of future fame as a naturalist, as it certainly would of many a now non-existent school museum, which might be made to develop into the lasting source of great pleasure and profit to the neighbourhood.

Professor Owen, Director of the Natural History Department, British Museum, speaks of "The early love of Nature, especially as manifested by the habits and instincts of Animals, as common to a healthy boy's nature."

In our public and high schools, many of such boys are found whom it would be wise to gratify their laudable curiosity, and stimulate their zeal for knowledge in this direction, as well as their desire for inquiry into the "reason and nature of things."

The Hon. Mr. Northrop of Connecticut, in his *Education Abroad*, speaking of this subject, as it applies to city youths, says:—

"The pupils who luxuriate in the wealthiest homes of the city, would profit by one year in the country, with its peculiar work and play, its freer sports and wider range of rambles by the springs and brooks, the rivers and waterfalls, the ponds and lakes, over the hills and plains, through the groves and forests; in observing nature, searching for wild flowers and curious stones, learning to recognize the different trees by any one of their distinctive marks, viz., the leaf, flower, fruit, form, bark and grain, watching the ant-hills, collecting butterflies and various insects, noticing the birds so as to distinguish them by their beaks or claws, their size, form, plumage, flight or song. Studying nature in any one of these varied forms, each so fitted to charm children, would refresh their minds as well as recreate their bodies, and stimulate that curiosity which is the parent of attention and memory. Nature is the great teacher of childhood, and with her the juvenile mind needs closer contact. Facts and objects are the leading instruments of its early development. We do violence to the child's instructive cravings for natural objects if we give it books alone, and confine it exclusively to the city."—(page 136).

National Importance of these Subjects.—The following is the opinion of a Committee of the British House of Commons on the national importance of these subjects:—

"The industrial system of the present age is based on the substitution of mechanical for animal power; its development is due, in this country, to its stores of coal and metallic ores, to our geographical position and temperate climate, and to the unrivalled energy of our population. The acquisition of scientific knowledge has been shown by the witnesses to be only one of the elements of an industrial education and of industrial progress. Nearly every witness speaks of the extraordinarily rapid progress of continental nations in manufactures, and attributes that rapidity, not to the model workshops which are met with in some foreign countries, and are but an indifferent substitute for our own factories, and for those which are rising up in every part of the continent, but, besides other causes, to the scientific training of the proprietors and managers in France, Switzerland, Belgium and Germany, and to the elementary instruction which is universal among the working population of Switzerland and Germany."

The following is a condensed summary of the more important conclusions of this suggestive report:—

"1. That with the view to enable the working-class to benefit by scientific instruction, it is of the utmost importance that efficient elementary instruction should be within the reach of every child.

"2. That unless regular attendance of the children for a sufficient period can be obtained, little can be done in the way of their scientific instruction.

"3. That elementary instruction in *Drawing*, in *Physical Geography*, and in the *Phenomena of Nature*, should be given in elementary schools.

"4. That adult science classes, though of great use to artisans, to foremen, and to the smaller manufacturers, cannot provide all the scientific instruction which those should possess who are responsible for the conduct of important industrial undertakings. That all whose necessities do not oblige them to leave school before the age of fourteen should receive instruction in the elements of science as part of their general education.

"5. That the reorganization of secondary instruction, and the introduction of a larger amount of scientific teaching into secondary schools are urgently required, and ought to receive the immediate consideration of Parliament and of the country.

"6. That it is desirable that certain endowed schools should be selected in favourable situations for the purpose of being reconstituted as science schools, having in view the special requirements of the district, so that the children of every grade may be able to rise from the lowest to the highest school.

" 7. That the managers of training colleges, for the teaching of elementary schools, should give special attention to the instruction of those teachers in theoretical and applied science, where such instruction does not exist already."

"This Parliamentary Report" (Mr. Northrop says,) is a remarkable document. There is in it a demonstration of the bearing of popular education on national industry. It proves that education is economy, and that ignorance means waste; that the skilled workman so forecasts and plans his work that every blow tells, while he economizes both his strength and stock; that even in the humblest labour he will do more work, in better style, with less damage to his tools or machinery, than the boor who can only use brute muscle."—*Education and Labour*, pages 150-152.

Charles Stetson, Esq., an American writer on *Technical Education*, in illustrating its national importance, forcibly observes that:—

"The different governments realize that henceforth national supremacy must depend more upon industrial supremacy; and so for this peaceful warfare, not the less real because bloodless, each is arming itself with the best weapons that art and science can furnish. In the schools, children and youth are trained with a direct view to labour, as they never were trained before. Of all things, the pencil is recognized as the most efficient ally of the needle-gun. While the latter wins victories on the field of battle, the former wins them in great industrial tournaments that bring together the rival products of the whole working world." This was clearly demonstrated by the Prussians in their late war with France.

As to the practical effects of industrial training on the inventive genius of a country, Hon. Mr. Northrop gives abundant and most interesting proof. He says:—

"On this subject facts furnish the most convincing arguments. The educational history of Connecticut gives a demonstration of the influence of education in developing inventive talent. . . . "In visiting the towns of this State, one is struck with the number and kinds of manufacturing establishments, and the endless diversity of their fabrics, varying from pins and needles, to car-wheels and cannons. Yankee notions some of them be called, but it requires ingenuity and skill to invent and make them, and 'they pay.' The ingenuity and inventive talent of Connecticut, is remarkable and unrivalled. For a long series of years, in proportion to its population, this State has taken the lead in the number, variety and value of its inventions, as is proved by the statistics of the Patent Office. In 1867, the number of patents issued to citizens of Connecticut, New York, and Massachusetts, and the proportion to population was as follows:—

"To citizens of Connecticut,	662,	being one to each,	695
" " Massachusetts,	1,451,	" " "	848
" " New York,	2,803,	" " "	1,382

"This is on the basis of the census of 1860, and the proportion is in the nearest whole number. The whole number of patents granted during the year 1867, was 12,301. The States here named are the ones which stood highest in the list of the patent office.

"In the year 1871, the whole number of patents granted to the citizens of the United States, was 12,511, and in part as follows:—

"To citizens of Connecticut,	667,	being one to each,	806
" " Dist. Columbia,	136,	" " "	970
" " Massachusetts,	1,386,	" " "	1,051
" " Rhode Island,	184,	" " "	1,181
" " New York,	2,954,	" " "	1,450
" " New Jersey,	496,	" " "	1,827

"The following are the figures for 1872:—

Connecticut,	648	patents issued, being one to every	829
Massachusetts,	1,435	" " "	1,014
Rhode Island,	179	" " "	1,214
New Jersey,	682	" " "	1,328
New York,	3,079	" " "	1,423

"These figures fairly illustrate the average pre-eminence of Connecticut in inventiveness, and clearly show the pecuniary value of intelligence, verifying the words of Burke:

'Taxes raised for the purpose of education are like vapours, which rise only to descend again in fertilizing showers to bless and beautify the land.'

"The influence of public schools in promoting individual thrift and general prosperity, is well shown by the following statements of Gen. John Eaton, United States Commissioner of Education:—

"The number of patents issued to the inhabitants of Arkansas, was one to every 37,267 persons, while in Connecticut there was one patent issued to every 695 persons. In Arkansas there are sixteen adults unable to write, to every one hundred inhabitants; in Connecticut, there are four adults unable to write to every one hundred inhabitants. In Arkansas, the receipts of internal revenue are twenty-six cents and nine mills per capita; in Connecticut, the receipts are two dollars and fifty-four cents per capita. In Arkansas there resulted during the last year to the Post Office Department, a dead loss of over forty-nine cents for each inhabitant of the State, a loss in amount almost double the internal revenue receipts of the State! In Connecticut there accrued a net profit to the Post Office Department, of twenty-six cents per capita. In Florida there are twenty-three adults unable to write to every one hundred inhabitants. In that State one patent was issued to every 31,271 inhabitants, or only six in the entire State. The internal revenue collected amounted to sixty-four cents per capita of the entire population. From that State, the Post Office Department suffered a loss of ninety-two cents per capita. Contrast this with California, where the number of patents issued was one to every 2,422 inhabitants, and the amount of internal revenue collected was six dollars and forty-three cents per capita! But in California there are only four adults unable to write to every one hundred of the inhabitants. In Tennessee, twelve adults are unable to read and write to every one hundred of the inhabitants, and the State pays internal revenue at the rate of ninety-six cents per capita; while Ohio, in which there are four illiterate adults to every one hundred inhabitants, pays five dollars and eighty-eight cents internal revenue per capita. . . .

"Education, it is well-known, favours inventions and improvements in machinery. Intelligent mechanics are continually devising improved methods of accomplishing given results. In a very large lock establishment in Connecticut, where the work is done mostly by the piece or job, so constant have been improvements in the processes or machines, that the workmen have for some years reduced their 'proposals' in the annual contracts, without decreasing and sometimes increasing their wages. Recent improvements in the rapidity of the processes are surprising. In a cotton mill, one carder can now do the work which would require five thousand persons by hand. Six hundred of the old hand wheels cannot spin as much yarn in a day as one girl can produce by machinery. In Hindostan a man can spin one hank a day; a modern spinner with his mule can produce 3,000 hanks in the same time. In 1807, Boston and Salem merchants imported cotton cloth from India; now millions of yards are exported to India and remote parts of Asia. A machine recently invented is turning out fish-hooks in New Haven at the rate of 62,000 a day, and another by the same ingenious inventor can make 50,000 needles a day. Other very curious inventions of his are saving hand-labour in the ratio of five hundred or even a thousand to one. A thousand men in the old English style could hardly make and stick as many pins per hour as one boy now does by machinery."—(Pages, 145-155).

As a striking illustration of the truth of these remarks, relating to the industrial supremacy of New England over the other States of the Union, I quote the following admirable account of Mr. Jacob Reese, a Pittsburg Master Mechanic, on the introduction of Linear and Freehand drawing into the Public Schools. He says:—

"Fully one hundred thousand tons of iron and steel are shipped annually (from the States) to New England to be fabricated into advanced forms of usefulness, such as knives, forks, bits, chisels, planes, rulers, squares, hinges, latches, locks, and other building hardware, screws, tacks and wire-cloth, together with a thousand other things. These works give employment of a light and pleasant nature to boys and girls, and men and women of a more advanced skill.

"This class of establishments is not only flourishing, but increasing with wonderful

rapidity, both in numbers and capacity, in Connecticut and Massachusetts. . . . The very act of learning to draw implants a desire into the mind to construct the forms we have drawn. The sketching on paper implants a desire to construct new machines of usefulness and beauty. . . . It must be kept in mind that these more finished goods require more expensive machinery for their manufacture, which too, must be manipulated with greater care and accuracy. There is nothing that fits a young person so well for accurate work as thorough practice in mechanical drawing, because the fundamental principles embodied in drawing is, that every line of four shall be drawn to the scale, and every line of shade measured by the want of light. This constant measuring of the form and adjusting the shade, impresses the pupil with the importance of accurate work. This not only cultivates the intellect, but develops the functions, thus by a pleasant and easy method, rendering habitual to the child, both the desire and ability to work. . . .

"A new epoch has been reached in our commonwealth, which requires that the study of drawing should be engrafted upon our common school system. Drawing not only cultivates the intellect, but also develops the functions, and is of great value in every department of life. It teaches order, as every part must be in the right place. It teaches accuracy in measurement, as every thing must be drawn at a proper distance. It teaches proportion, as each part must be drawn at a proportionate scale. It teaches delicacy in forming the shadows of light. It teaches unity, as neither the drawing nor the machine for which it was designed, would be of service if any functional part was left out. It cultivates the mind in mechanical movement by object teaching. It teaches accommodation by the adjustment of one piece of machinery alternately taking the place of another in different parts of the revolution. It teaches the laws of light, as all drawings are shown from some fixed ray of light. It teaches the pupils to consider the strength of materials, as every position of the machine is designed to resist the strain of rupture. And last, though not least, drawing creates a desire to build and work at the machine, tools are sought and used, and often by this simple test, the inventive genius is brought to light and to profitable employment."

Let us look at this whole question as it effects ourselves in Canada.

"We are a young country, placed in close proximity to a large and wonderfully progressive and ingenious people. In the good providence of God, we are permitted to construct, on the broad and deep foundations of British liberty, the corner stone of a new nationality, leaving to those who come after us to raise the stately edifice itself. Our aim should, therefore, be to make that system commensurate with the wants of our people, in harmony with the progressive spirit of the times, and comprehensive enough to embrace the various branches of human knowledge which are now continually being called into requisition in the daily life of the farmer, the artisan, and the man of business. And yet no one who has carefully watched the development of the material resources and manufacturing industries of this Province, but must have been painfully struck with the fact that, while we have liberally provided for the other wants of our people, we have almost entirely neglected making suitable provision in the schools for training, and then turning to practical account that superior scientific and industrial skill among ourselves which in other countries contributes so largely and effectively to develop their physical and industrial resources. The remarkable and almost unconscious development among ourselves of the manufacturing interests of the country, though depressed for a time, has reached a magnitude and importance that it would be suicidal to those interests (in these days of keen competition with our American neighbours), and injurious to their proper development, not to provide, without delay, for the production among ourselves of a class of skilled machinists, manufacturers, engineers, chemists, and others.* No one can visit

* The *American National Quarterly Review* for March, 1877, speaking on this point says, "that we provide those among ourselves with the ability to do that which cannot now be done in this country, except by foreign educated artisans and workmen, and you will add at once to the material wealth of the country, as well as to its intellectual good, individually and collectively."—Page 348.

"Again, in dealing with the question of home skilled labour and the cost of transportation, Mr. Charles Stetson has estimated that it would require 19,000,000 bushels of Illinois corn to pay for three kinds of skilled artistic manufactures imported to America in 1873 from little Switzerland alone. The goods were watches, embroidered goods, silk and silk goods, to the value of \$9,839,464, at the place of shipment. How much less the cost in transporting these goods than the immense amount of corn (if the payment were made in corn) required to balance the account."—*Ibid*, page 352.

any of the industrial centres which have sprung up in different parts of the country, and in our larger towns, without being struck with their value and importance, and the number and variety of the skilled labourers employed. Inquiry into the source of supply of this industrial class reveals the fact that, from the youngest employes up to the foreman of the works, they are almost entirely indebted to England, Ireland, Scotland, the United States, and other countries, for that supply.* Again,

"Rising up above this mere local view of the question, other broader and more comprehensive ones force themselves upon our attention. Are we not conscious of the extraordinary scientific and industrial progress of the present day? Do we not hope for and predict under God's Providence, a great future for this country? Have we not in the assertion of our incipient nationality, entered the lists of industrial competition with the United States, and even with England and other countries, as witness the late exhibit? And do we not, therefore, require to make some effective provision for training that class of young men who must in future take the leading part in that competition. The wonderful progress of the mechanical arts is within the memory of most of us. The marvellous revolution caused by the practical application of steam and telegraphy (those golden links of science) to locomotion, commerce, industry and intercommunication, has so stimulated the inventive genius of man, that we now cease to be astonished at any new discovery; and only await each successive development of science, still more wonderful than the last, to calmly discuss its merits and advantages. In this active race of competition our Dominion cannot stand still. With all our inventions, we have not yet been able to discover the royal road to learning; and our youth cannot, Minerva-like, spring fully armed into the arena of competitive science and skill. We must, therefore, provide liberally for the patient and practical instruction in every grade and department of knowledge, so that, with God's blessing, we shall not fall behind in the great race of national intelligence and progress."†

Finally, there is one lesson which I trust all who visited the Exhibition have learned, and that is a stronger and deeper devotion to the beloved Sovereign of that great Empire to which it is our pride and happiness to belong. By this I do not mean to say that our respect and admiration for other countries, and especially the one in which we were so courteously received, and so cordially welcomed, should be diminished. Indeed, as a matter of fact, I think that feeling of respect has only been deepened by contact with so generous and high-spirited a people, while our views and opinion of other countries have been expanded and enlightened by a knowledge of their capabilities and resources, and by contact with them in that great cosmopolitan gathering of nations. But this I do say, that as the result of a closer and more earnest study of the institutions, the social and political condition of these countries, we return to our own with a more professed conviction that there is no single excellence in their forms of Government, or no social, educational, or political privilege which they possess, which we do not even more fully and securely enjoy than they do;—that our British Colonial form of Government—"with all its faults"—(is yet untrammelled by many of the traditional barriers, social forms and hereditary distinctions which exist in Europe,) and that it gives us "ample scope and verge enough" for the fullest enjoyment of personal and political freedom under the restraints of law, and ensures to us all that we can desire with these,—security of life and property. Animated by such feelings, and convinced that they spring from an abiding sense of the security of our institutions, and the genuineness of the guarantees for our political freedom, we can rest satisfied with an assurance that we possess all the elements of national life and prosperity which should make us a happy and contented people.

* Report of an Inquiry in regard to Schools of Technical Science in the United States, and the United Kingdom. By J. George Hodgins, LL.D., and Alex. T. McHattie, M.D., Toronto, 1871, page 18.

† Report of an Inquiry in regard to Schools of Technical Science in the United States, &c.

CONCLUSION.

I have thus sought to do full justice, as far as possible, to the educational features of the great International Exhibition at Philadelphia. I have also sought to draw such practical lessons from that Exhibition as appeared to me useful and appropriate.

I have not attempted to deduce any lessons from these educational exhibits, in regard to national or state school systems or progress, or from the educational facts which I have given in this report; nor have I instituted any comparison between the systems of various countries, owing to the fact that no general rule on the subject, which might apply to one country could be made to apply to another by reason of various political and social causes operating favourably, or otherwise.

In regard to educational progress; that too is controlled by so many causes of a like nature, that we could deduce but few general lessons of any value from it. The only questions which it appeared to me we could study at the exhibition with profit were: (1) the processes of education as there illustrated; (2) the extent to which instruction in the various branches was given in the different kinds of schools, and (3) their combined development in the intellectual and industrial life of the people, or nation, as illustrated in its industrial products, science, art and general culture.

Of course, much that was seen at Philadelphia was superficial, if not practically unreal, so far as it related to illustrations of daily school life, progress and process. But, nevertheless, there was apparent, on examination of the material of the exhibits themselves, a sufficient substratum of facts to enable the attentive observer to form a satisfactory estimate of what the exhibit was designed to show, and what it did in fact illustrate.

What is known as "higher" (or university) education, received little or no prominence except incidentally, at the exhibition. I have not, therefore, made any but slight reference in this report to that subject.

In addition to the educational "lessons," from American and Canadian standpoints, which I have given in this report, there are two or three facts connected with this subject which are worthy of notice, and which convey their own lessons.

1st. The marked and highly significant progress which the educational "idea" has made within the last ten or fifteen years in various European countries, and the "new departures," no less remarkable of their kind, which have taken place in Japan, and to some extent in China and Egypt, especially in the policy of the governments of these countries on this subject.

2nd. The thorough awakening which has taken place among the industrial nations of Europe in regard to instruction in industrial and elementary science. The earlier International Exhibitions had ruthlessly exposed the absence of originality of design and skill in its application to industrial art in the exhibits made, especially in those from England. Some of the continental nations profited by the knowledge thus gained; while others, England included, failed to do so; until at length the comparative inferiority of the industrial art exhibits at successive International Expositions demonstrated the necessity of a thorough reform in art education. This has at length taken place, as detailed in this report; and now the countries concerned are making every effort to recover lost ground

and to give to industrial art-training its proper place in their systems of public instruction.

3rd. The recognition, as in England, and more or less in France, Austria, Russia, and Japan, of the necessity of placing the education of the people on a national basis—substantial and real—as in Prussia and the other States of Germany, the United States, and these Provinces—so as (1) to provide schools for all classes of the community; (2) to recognize the principle of local taxation for schools; and (3) to compel parents to perform their duty, and to afford their children, as of right, a minimum of education at least.

4. The only other points which I shall notice are (1) the ample provision which has been made of late years for the more abundant supply, by Government authority, of school “material,” in the shape of maps, charts, books, apparatus, &c.; (2) the necessity imposed upon local school managers and trustees to improve the condition of school-houses, and to provide for the application of principles in their construction—in regard to heat, light and ventilation; and (3), and lastly, for the greatly increased facilities which have been provided for the thorough training of teachers in the duties and details of their profession.

If, in addition to those lessons, and those which I have in this report ventured to draw from the teachings of the Exhibition, we shall also profit by the example and proceedings of other countries, to which I have just referred, we shall not fail of that great educational future which, I trust, is before us, or suffer ourselves to fall behind in the educational race on which we so auspiciously entered at the Centennial Exhibition of 1876.

I have the honour to be,

Sir,

Your very obedient servant,

J. GEORGE HODGINS,

Deputy Minister of Education for Ontario.

Toronto, 10th May, 1877.

APPENDIX A.

I. THE EDUCATIONAL INFLUENCE OF INTERNATIONAL EXHIBITIONS.

BY PROF. ARCHER, BRITISH COMMISSIONER TO THE CENTENNIAL EXHIBITION.

The following lecture was delivered in Philadelphia by Prof. Thos. C. Archer, British Commissioner to the Centennial Exposition. It is generally admitted that no man was more competent than Mr. Archer to speak upon the subject here discussed.

“My object in this lecture is to bring before you in as succinct a manner as possible, the history of the rise and progress of international exhibitions, and to convey to you, as well as I possibly can, my own impressions of the advantages which these exhibitions confer upon civilization. I have a strong faith in them myself; I have always had. I have worked earnestly in them, I have seen their defects, and I have seen their benefits also largely developed, and still being developed. These exhibitions are institutions of the time, to my mind, and you are gradually awakening to that idea; you have begun your career in that direction in Philadelphia, with an institution which may not end for a thousand years to come.

"LONDON EXHIBITION, 1856.—The first of these international exhibitions was originated in 1850, by one of the best men the world has ever known, a man who had the interests of his fellow-man at heart as warmly as any man could have, the Prince Consort of England. It occurred to him, and he suggested the thought to others, that we should have an exhibition of a different character, one in which one nation should vie with another, not simply one individual citizen of a city or district with other natives of the district, but that it should be universal, that we should compare notes with other countries; and the consequence was that the original idea of an international exhibition was started. It was carried out in the most admirable manner—admirable because the Prince had in the first place the wisdom to see that the idea in itself was a good one; and, in the second place, the possibility of finding men about him capable of carrying out the idea most thoroughly, and of working it up to its ultimate success. The staff then organized was composed of as intelligent men as ever met together for such a purpose.

"*The Immediate Influence of the Exhibition at London in 1851* was very remarkable. Previous to that, Englishmen had the obstinate idea that one Englishman was equal to five Frenchmen, and three of any other foreigners, not merely in muscular strength, of which they had not the slightest doubt, but in intellectual attainments, and everything which made one man better than another. Never was a nation more completely subdued than the English by that Exhibition; they learned for the first time that there were some things in which others were better than themselves, and some things in which they were better; and the knowledge one gets of one's self in this way, learning his weaknesses and his strength, his excellencies and deficiencies, giving and taking, imparting to others wherein he excels, and receiving from them that in which he is deficient—this knowledge is really the best, and gaining it was one of the best things that the exhibition of 1851 did for us. Our art tastes were degraded in every way, but we stuck by them. We built buildings that were a disgrace, we made pictures not now worth looking at, we made pottery which our ploughmen would not now use, and we went on with the idea that no one could beat us. The Prince knew better; he had a universal feeling, a feeling for art that was neither English nor German—the true art feeling. He felt that very much was to be done to bring the people together to study art principles in schools in the French manner. The result was extraordinary. Previous to that time our art schools were very badly attended. In 1851 we might have counted them on our fingers. Out of that Exhibition sprang very numerous schools of design; the art taste was cultivated, and institutions were opened up all over Great Britain, for the purpose of teaching a scientific knowledge of our manufactures, and the theory of the æsthetic knowledge of the arts. Then sprang up the South Kensington Museum. I see before me one or two gentlemen who are admirable judges, and they will give it the fullest endorsement, that it is at present one of the first in the world.

"*Results.*—That is one of the results of our holding an Exhibition when our art tastes were as degraded as they could be, and a low grade of knowledge prevailed. We have learned the opposite lesson; we have attained to a means of improvement which will go on forever. The South Kensington Museum and its affiliated institutions are completely revolutionizing the whole tastes of the country, and in such a manner as would surprise you. We have at present between eight and nine thousand schools or classes of art, at almost a nominal cost. The system is this: Wherever twelve gentlemen will meet together and petition the Science and Art Department to establish within their precincts an art or science school, engaging that there shall be a certain number of pupils, one is started. This has gone on to such an extent that it is a very profitable thing for the teachers to get together pupils in this way. They make handsome incomes, and the Government reduces its capitation fee as the pupils increase and have to pay. Thus the charge on the State per head is becoming less and less, while the number of classes is going on increasing. This is one of the first and grandest results that came from the great Exhibition of 1851.

"*Benefits.*—Then there was another good and useful feeling originated by that Exhibition. That was, the manufacturers of Europe obtained the idea that they derived a benefit from these exhibitions; that they were the best possible means of advertising, people being enabled to compare one thing with another, and ascertain which was good

and which was bad, and learn to fix their choice in the right direction. It has invariably been the practice prior to each of these Exhibitions to run them down—the manufacturers were reluctant to incur the cost of competition; but when one comes in others come in, and in the end all show their confidence and appreciation of the value of these Exhibitions.

"CORK, DUBLIN AND PARIS, 1852-1855.—The Exhibition of 1851 has been followed up by a much larger series of Exhibitions than is generally imagined by those paying no attention to the subject. There were two held in Ireland—one in Cork, the other in Dublin. Then, in 1855, an Exhibition was held in Paris.

"MANCHESTER ART.—We had also an exhibition in Manchester—of art purely. This was confined to pictures, sculpture, engraving, graphic art generally, and decorative art. That was made up almost entirely of loaned collections, which completely changed the tastes of the people in that neighbourhood. The first argument offered against it was: What is the use of bringing to a neighbourhood like Manchester, composed of manufacturing people, such a collection as the Hertford and other choice collections? I went there as a reporter over forty times. My chief amusement was to listen to the people, and I found that I obtained more information by listening to these mill-people than by any observations of my own. It taught me a lesson—that those who put their own opinions up as far better than their humbler neighbours are often mistaken. Nothing ever did more good for such a neighbourhood than that exhibition at Manchester.

"HOLLAND, BELGIUM, ITALY, FRANCE.—Two exhibitions were held in Holland, the one quickly after the other. They were purely of an industrial character, and were conducted in a very admirable manner; the one in Amsterdam, in a building specially erected for it, and the other in Haarlem, in a building hastily adapted for the purpose. Their success was extraordinary, and forced upon the Dutch people the conviction that such exhibitions are aids to trade and manufactures. The fruits produced then have been a most thorough attendance upon exhibitions, and very great practical benefits reaped from them. About the same time many others were being held in Florence, Naples, Brussels, Rome, Havre, &c.

"LONDON, 1862.—In 1862 it was determined to give another exhibition in London, but previously that of 1855 was held in Paris on a very large scale. I had not so much opportunity of going into the history of that exhibition, though I attended it throughout; for, like all strangers, I became attracted by the amusements of Paris—these exhibitions for such reasons do the natives more good than strangers. In 1862 our second exhibition was held in London, although there was very great fear, indeed, that it would not prove a success; and this is always one of the worst features when an exhibition is talked of—it is prophesied that it will be a failure, that it is one too many, and such croakings. It did, however, prove a very great success. So thoroughly imbued were many with the exhibition idea, that it was thought desirable that, instead of being held once in ten or twelve years, one should be held every year, and this led, in 1871, to the plan of the Annual International Exhibitions, which, as I shall tell you afterwards, was not so successful. In 1862 we had what we had not in 1861; we had fine art as a very important feature, and the picture gallery of 1865 was perhaps one of the finest in the world—admirable in its construction, admirable from the comfort it gave to the spectator, and admirable also for the works shown in it, though in that respect not more remarkable than the average of our exhibitions usually. The exhibition of 1862 gave a great stimulus to the rest of the world, and forced the idea still further that these general exhibitions must go on.

"STOCKHOLM, 1866.—In 1866 an exhibition was held at Stockholm in Sweden, which was very beautiful. It was got up with the idea of exhibiting only local productions; but it was extended to all Scandinavian productions, and Norway, Sweden and Denmark participated, and there were a few representations from other countries. The arrangement now is, that every third year there shall be an exhibition in one of the Scandinavian capitals. In 1872 the second one was held in Copenhagen, and it was a most admirable success. It is due to these small exhibitions that you have so many countries now coming forward to yours. For instance, Norway and Sweden—what can be more elegant than the arrangements they are making? There is taste, organization, and thorough knowledge of exhibition work. This arises from the fact that they have held exhibitions themselves

which have been successful in advancing their comfort, their commerce, and their general happiness as a people.

"PARIS, 1867.—In the great Paris Exhibition of 1867 there was a widening of the exhibition idea altogether, the idea of representing nationalities. Every nation wanted to be separately recognised there, and the grounds were consequently immensely extended; and they had arrangements for showing the national houses and restaurants, the national modes of living and costumes, and it was one of its chief and most agreeable features. This was carried out still further at the Vienna Exhibition, and will have even a wider range at that here inaugurated.

"MOSCOW, 1872.—The exhibition held in 1872 did not attract much attention either in Europe or America. It was held in one of the most picturesque spots upon the globe, the last, indeed, where it would have been expected to have a great exhibition, the Exhibition of Moscow. This was the first effort at a scientifically organized exhibition, and I am sorry to say it was the last. I hope it will not long remain the last, but that the principles upon which it was inaugurated will be those upon which exhibitions in future will be carried on everywhere. The effort was to have philosophical arrangement of all the articles exhibited, every class being grouped within a space commensurate with its requirements. The exhibition was held in the Alexander Garden, and it covered two miles of space. It ought to have attracted the greatest possible notice all over Europe, if not from more distant countries, but it was very little visited, except by the natives of Russia. But it was the most teaching exhibition that has ever yet been held. No human being could walk through any one of its classes without coming away much cleverer than he went there, simply because the organization and the arrangement were so wonderful that you could pick up knowledge and information without knowing it. Just, for instance, as in your United States Government building you show your postal service, with all its appliances, they had a postal department where you saw not only what they were doing in Russia to bring their postal system to perfection, but in every country in the world. For instance, there was a long avenue of postmen—of course, dummies—each one arrayed in the costume of his respective country; there was an album containing the postage stamps of every country, a library composed of books containing forms for every purpose connected with postal administration, and a long line of carriages used for carrying out postal arrangements—everything from the rude sledge of the wild Kamtschatkan to the formal yellow-painted van of the German States, where they like yellow better than anything else. There was also every form of telegraphic apparatus, and telegraph office, so that you could write or telegraph to any part of the world.

"Then in the medical department there was a hospital, such as is used in their large cities, furnished with every appliance which might be required for accidents at any moment; in the dispensing department all the proper pharmaceutical arrangements, and outside a garden in which every medicinal herb was growing that could be used in this department.

"In their States Department corresponding to your United States Department, their navy was illustrated by a man-of-war put up in sections on land. There was every kind of fitting for the saloon cabins and for the men, every kind of appliance for shipboard life; the rigging was shown, the sections taken, showing the masts standing and the other parts left out; the sails were flapping in the wind, and you saw how they were made. The flax was brought in, spun into yarns, and woven into sails, the ammunition was made upon the spot, and the very cannon were bored while you were looking on. It was, in short, a polytechnic display the most perfect the world has ever seen.

"STOCKHOLM, 1872.—I mentioned to you that the Copenhagen Exhibition which was held the same year as the Moscow one, was not a large one; it was chiefly for the display of Scandinavian products. The exhibits of porcelain were exceedingly fine, and they pointed out to me what an immense influence the other exhibitions had in stimulating this beautiful art, and bringing it to such perfection as I there found it. It had broken down the royal monopoly of making porcelain in Copenhagen, showing that it did not meet the wants of the people, and that private enterprise had brought out manufacturers who were surpassing the royal works. The following year the royal works broke down completely, not a bad result of the exhibition.

"VIENNA, 1873.—The Vienna Exhibition, in 1873, was so much wider in its aims that

it deserves especial mention. Its development of the national idea was much in excess of all the demands, and the stimulus given to the various nationalities of the empire to do something, although too poor to do much, caused so great a strain that that exhibition cannot be considered a very great success. Still I am convinced that seeds were sown upon that occasion which will produce good fruit for Austria. I know personally that at this time many trades which were in a dilapidated condition when the exhibition opened, are thriving now.

"This is a small result for the immense exhibition at Vienna, but it is only owing to peculiar circumstances that no better results followed. I am firmly convinced, however, that the time will come when the seeds then sown will produce great results. It has given them the feeling that they can hold their own with the rest of the world in a variety of ways. They have opened their country to the outside world in a larger measure than was thought of before, and this has given an international feeling, and has been productive of growth; they have let in intercourse with the world, which has brought in many wholesome influences, and must conduce to their benefit.

"LONDON, ANNUAL.—It was hoped that the annual International Exhibition in London would be permanent. It was thought that breaking up these exhibitions into annual sections, representing only a certain class of articles each year, was better than to put forth the entire efforts every ten years. The idea was a good one, but the administration was bad, and they of course failed. It could not be carried out without great and constant energy, and that could not be sustained year after year. Besides, we in England have people who like to get a good job. You have some in America, but you haven't them all. The international exhibitions became comfortable berths to a great many people, who preferred them to the exhibitions. Of course, the exhibitions failed. The principle was good, but was badly carried out. The idea was not an original one, but was copied from the French triennial exhibitions held during the First Empire, and again copied in France in the small exhibitions held every four years in Paris, known as the *Concours Centrale*. These are admirable in every way, and are the most useful and beautiful that have ever been held. They are regulated with great care, not by an official bureau, but by the manufacturers and producers themselves, who form a committee among themselves of various tastes and sound judgement. A man must be well known and a sound man to get on this committee. Nothing gets in without running the gauntlet of the whole committee, and very little that is indifferent obtains admission. The people in France thus have an opportunity of seeing in a moderate exhibition the best efforts of art and manufacture in their country. It is a great æthetical lesson for the people themselves. They learn what art can produce, they desire to have it, and every person connected with it is benefited.

"PHILADELPHIA, 1876.—The next great effort was by the proposal to hold an exhibition here. You know quite well that it was not at first very warmly received in Europe. But the difficulties always give way. They have done so at least hitherto. We have just begun exhibitions, and shall go on with them to the end of time. No sooner was the mind of Great Britain convinced that you were serious in your intention of holding a great exhibition, than they came forward in my country with a thorough earnestness of purpose and a determination to do their best, and the strong conviction that you were doing the right thing too in taking your share of the great benefits which we are sure do arise from these exhibitions. . . . Mr. Archer concluded:—We come here, and we find men with the same love of culture and of right which we are accustomed to find in our best circles, the same genial feelings in all classes, the same warm sentiments. I am sure that I and my countrymen will leave with an admiration of your exhibition, and for those who have brought it to a successful end."

II. LESSONS DERIVED FROM THE PARIS EXPOSITION, 1867.

FROM THE CONNECTICUT SCHOOL REPORT FOR 1876.

"The Paris Exposition in 1867, taught some salutary educational lessons to the English Government and people, and was one of the prominent causes which led to the adoption of the new national system of education in 1870. It demonstrated that England

was 'outstripped both in the arts of peace and war by the continental nations in virtue of their better education.' It proved a good school for England and for all Europe. The evidence then presented of the relative decadence of English manufactures was a surprise to the nation that had so long assumed superiority to all the world in her manufactures. Not only the English 'jurors or official inspectors of the exposition but the press of England, her manufacturers and practical observers, and even Parliament, were compelled to admit that England fared ill in that comparison of the world's industries. One of the jurors, J. Scott Russell, said :—'Something must be done or our working classes will be grievously wronged and the whole nation suffer. In the race we are nowhere. Our defeat was as ignominious and as disastrous as it is possible to conceive.' The elaborate Parliamentary Report, 'on the causes and the remedy,' convinced the government of the fatal blunder of neglecting popular education. It was the most striking demonstration ever presented, that education fosters invention, thrift, and economy, and that ignorance means waste and weakness. This Report led to the expansion of the South Kensington Museum and the organization of numerous schools of art and industrial drawing throughout England, as well as to the new measures for popular education."

APPENDIX B.

I. PEDAGOGICAL MUSEUMS AND DEPOSITORIES IN ENGLAND, CANADA AND RUSSIA.

I. BY THE HON. J. P. WICKERSHAM, LL.D., SUPERINTENDENT OF PUBLIC INSTRUCTION, STATE OF PENNSYLVANIA.

It would not be out of place to speak here of the Museums of Industry and of Art that have been established, and are springing up in the different countries of Europe; but the limits assigned to this report will permit only a brief account of what are called Pedagogical Museums, Exhibitions of Means of Instruction, or Depositories of Education. Under these different names they embrace a collection of all the material of education—school furniture, school apparatus, text-books, and appliances for schools of all kinds. Of institutions of this kind, several were represented at the Exposition :—the South Kensington Museum, England,* which, a fine pedagogical department, in sending an exhibit to Philadelphia, did not include much of a general pedagogical character. The Pedagogical Department of the Industrial Museum at Zurich, Switzerland, was only partially represented. The "Permanent Exhibition of Means of Instruction," at Vienna, was represented only by a series of photographs, which, however, were sufficient to furnish evidence of a large and rich collection. The Depository of Education, at Toronto, Canada, and the Pedagogic Museum at St. Petersburg, sent to the Exposition full and very interesting exhibits. Of these some account will be given.

First, of that from Ontario. The Educational Depository of Ontario is a branch of the Education Department of the Province. It was organized in 1851. As classified in the catalogue of its exhibit at Philadelphia, its contents are as follows :—

1. Reports and documents relating to systems and institutions. Photographs, plans and models of school buildings, school fittings and furniture. Specimens of pupils' work. Blank forms.

2. Text-books. Books relating to teaching. Library and prize books.

3. Material of object lessons, maps, charts, globes, philosophical instruments, collections in natural history, etc.

In the twenty-five years since its establishment, this Depository has obtained by manufacturing at home and by importations from abroad, a large and fine collection of the best kinds of material relating to education. The following are the special objects at which it aims :—

* A sketch of this noted Museum, by Mr. P. Cunliffe Owen, will be found on page 264 of this Appendix.

1. To provide a complete Educational Museum, where teachers, school officers and all interested in education, can obtain information of all kinds in relation to the management of schools.

2. To bring to the notice of all concerned in the work of education throughout the Province, the best plans of building and furnishing school houses, and the best kind of apparatus and appliances to be used as means of instruction; and, as far as it may, hasten their adoption.

3. To furnish, under certain conditions, to school trustees and other proper persons ordering them, text-books, library and prize books, books for Sunday schools, and articles and sets of school apparatus, at the lowest possible price.

These books and articles are obtained by officers of the Depository in large quantities for cash, and the Minister of Education adds from a government grant 100 per cent. to all sums, not less than five dollars, transmitted to the Department for their purchase for the use of the public schools. The result of this policy is that in 1872, there were in Ontario, with about 5,000 schools, 4,310 Public Libraries, and there had been sent out to them 253,512 volumes. Of prize books there had also been sent out 627,590 volumes. Of school apparatus, there were sent out—of Geographical maps, 1,461; of Scriptural and Classical maps, 144; of other charts and maps, 447; of globes, 123; of sets of apparatus, 43; of single pieces of apparatus, 446; of historical and other lessons in sheets, 13,055.

The formation of School Museums is encouraged. Specimens in Natural History are sold to the public schools on the same terms as are books and apparatus; but in addition to this and stimulated by it, the teachers and pupils of the schools themselves frequently make collections in their own neighbourhoods, and exchange with other schools.

It seems to be the opinion of all the leading friends of education in Ontario, that the Depository has been of great benefit to the school interests of the Province. There have been objections to its buying and selling books and apparatus in competition with private parties, but as a museum and a means of spreading abroad knowledge in reference to school-houses and methods of instruction, it meets universal commendation.

In what will be said of the Pedagogic Museum of St. Petersburg, free use will be made of the catalogue of the exhibit at the Exposition. The Museum has for its object:

1. To collect information regarding the manufacture of school apparatus in Russia and abroad, and to exhibit as complete a selection as possible of contemporary school and educational apparatus as well of home as of foreign make, with a view of facilitating educational establishments in the choice of proper apparatus suitable to individual requirements.

2. To submit the school apparatus thus collected to special examination and test, in order to ascertain their comparative merits, as well as the best way of applying them to the purposes of instruction and education, and in case of need to introduce improvements in school apparatus.

3. To promote the development and reduction in cost of the local manufacture of school apparatus.

4. To promote the diffusion of pedagogic and educational knowledge by means of the collected school apparatus.

The Museum, through its agents, both permanent and temporary, gathers information respecting the state of the manufacture of school apparatus in Russia and abroad; with this object in view, it studies Exhibitions, as well local as international, in which a place is assigned to pedagogic apparatus, collects catalogues, price-lists and notices of the manufacturers of school apparatus, and finally, as far as its funds permit, procures specimens of school apparatus, classifying and exhibiting them at its permanent Exhibition.

The extent of the museum may be judged of by the following enumeration of illustrative objects: For use in Religious instruction, 70; instruction in Mathematics, 120; Natural Philosophy, 400; Natural History, 600; Cosmography, 100; Geography, 300; Political History, 200; Drawing 100; Calligraphy, and Stenography, 50; Course of an elementary School, 50; Domestic Instruction and Kindergarten, 250; Gymnastics, 40; Music, 85; Hygiene, 200. Besides these, there are many specimens of school and class furniture, the whole amounting to 2,700, without including some 4,000 slides for the

magic lantern, arranged to illustrate various branches of knowledge. The library of the museum contains 12,000 volumes, and 50 pedagogic periodicals are received.

The examination and testing of school apparatus, an estimate of their relative merits, and the introduction of improvements, are carried on by specially organized sections of the Permanent Committee of the Museum, which manages the whole institution, and consists of the President and four members appointed by the government. Up to 1870, the workshops of Russia had produced very little school material of any kind. By the following means, originated and carried into effect by the Museum, great progress has been brought about :

1. Discovering in the capitals, as well as in the provinces, fresh producers of school apparatus, and affording them gratuitous use of models and drawings made by specialists, and in some cases supplying them with funds.
2. Granting the right to every producer of exhibiting his specimens among the collections of the museum.
3. Examining school apparatus through experts, granting certificates of approval, and spreading information regarding the best and cheapest apparatus.
4. Arranging local exhibitions and bringing together producers of apparatus, and the representatives of school demands.
5. Sending specimens of the collections, at the expense of the museum, to the International Expositions, and at the same time allowing the producers to enjoy the rights of exhibitors.

In addition to the travelling Exhibitions, which are organized and sent out to the different provinces, for the purpose of acquainting teachers and school boards with the most approved school apparatus, the diffusion of knowledge is promoted by the following means :

1. The museum opens its collections and library for gratuitous use.
2. In its Sections it carries on open discussions on questions of instruction and education.
3. It publishes, periodically, explanatory catalogues of all the collections of the Museum.
4. The members of its Sections contribute to a special pedagogical periodical.
5. Public lectures are read on pedagogical and scientific subjects, as well as readings for the people, all of which are published in the form of small pamphlets.

II.—PEDAGOGIC MUSEUM IN RUSSIA, FROM THE REPORT OF THE HON. B. G. NORTHROP, LL.D., SECRETARY OF THE CONNECTICUT STATE BOARD OF EDUCATION.

Many of the European Governments have liberally donated their Centennial exhibits to the United States Government. For their reception, a new building on the grounds of the Smithsonian Institution has already been planned, in which one large wing is set apart for a Pedagogic Museum. The educational appliances embraced in these foreign gifts are nearly enough to fill this large wing. Once organized, it will be a nucleus around which will be gathered the material for an ample Educational Museum. Such an institution is greatly needed in this country. The importance and usefulness of such a museum were happily illustrated by the grand display made at Philadelphia by the Pedagogic Museum of St. Petersburg.

The educational exhibit of Russia evinces the thoroughness and success with which industrial and technical education has been recently organized in that country. The great Pedagogic Museum of St. Petersburg has contributed much to this result. The statements here given on this subject are condensed from the Russian Reports. This Museum is designed to collect and diffuse information in regard to the best school apparatus made in Russia or abroad, and to exhibit the fullest possible collection of the same, so far as to facilitate selection and purchase to suit individual requirements. Experts are employed rigidly to test these various appliances, and determine their comparative merits, and in case of need, introduce improvements required, and to reduce the cost of their production

and sale to the lowest practicable figures. Through the Russian Ministers and other agents in foreign countries, this Museum is continually collecting information in regard to school apparatus and appliances in other lands. Russian agents carefully studied our Exposition, as they have all others where pedagogic apparatus has been shown, collecting catalogues and price lists, and procuring specimens of school apparatus for the St. Petersburg Museum.

The success of the St. Petersburg Museum is the more striking in view of its recent origin. That an institution organized only a dozen years ago has already assumed so large proportions is but one of many indications of the rapid progress made by Russia during the last decade.

The following is the official account of this Museum, published by the Russian Government:—

III.—THE PEDAGOGIC MUSEUM AND EDUCATIONAL DEPOSITORY OF RUSSIA. OFFICIAL ACCOUNT.

The Pedagogic Museum of the military schools, is a government Institution founded in 1864 in the exclusive interests of the educational Establishments of the Ministry of War, but which in 1871 became an independent Section of the General Museum of Practical Science of St. Petersburg.

The Pedagogic Museum has for its object:

(1.) To collect information regarding manufacture of school apparatus in Russia and abroad, and to exhibit as complete a selection as possible of contemporary school and educational apparatus as well of home as of foreign make, with a view of facilitating educational establishments in the choice of proper apparatus suitable to individual requirements.

(2.) To submit the school apparatus thus collected, to special examination and test, in order to ascertain their comparative merits, as well as the best way of applying them to the purpose of instruction and education, and in case of need to introduce improvements in school apparatus.

(3.) To promote the development and reduction in cost of the local manufacture of school apparatus, and

(4.) To promote the diffusion of pedagogic and educational knowledge by means of the collected school apparatus.

Up to 1870 the Museum applied its endeavours solely to carry out to the utmost extent the first object, but its activity gradually increased, and at the close of 1871 began to be directed to the attainment of all the above mentioned aims, availing itself of the following means:

(1.) The Museum, through its agents, both permanent and temporary, gathers information respecting the state of manufacture of school apparatus in Russia and abroad; with this object in view it studies Exhibitions, as well local or international, in which a place is assigned to pedagogic apparatus, collects catalogues, price lists and notices of the manufactures of school apparatus, and finally, as far as its funds permit, procures specimens of school apparatus, classifying and exhibiting them at its permanent exhibition.

In 1866 *i. e.* in the second year of its existence, the Museum possessed a collection of apparatus, relating chiefly to preliminary instruction, and occupying a space of 18 square fathoms. In 1870 the collections occupied a square of 35 square fathoms, and at present the collections, consisting almost exclusively of specimens, cover 150 square fathoms of floor, 300 square fathoms of wall, and 250 square fathoms along the shelves.

The collections of the Museum may be divided into four principal groups:

(1.)—INSTRUCTIVE PORTION.

1. Religion (about 70 denominations of collections of wall charts, atlases, albums, pictures and reliefs.) 2. Mathematics (120 denominations of collections of apparatus in arithmetic, geometry and geometrical drawing.) 3. Natural Philosophy (400 apparatus and collections of drawings and sketches relating to a preliminary course in physics and chemistry, magnetism, electricity, galvanism, light, sound, heat and mechanics.) 4. Na-

tural History (600 denominations of collections and aids in mineralogy, botany, zoology, anatomy and physiology). 5. Cosmography (100 denominations of collections and aids in mathematical and physical geography). 6. Geography (300 denominations of collections in physical, political and historical geography, and in ethnography). 7. Political History (about 200 denominations of collections in universal history, and in the history of Russia, among them aids for the study of the cultural side of history). 8. Drawing (100 denominations of aids and collections of various systems of preliminary, technical and art drawing). 9. Calligraphy and Stenography (about 50 denominations of aids in classes and for pupils). 10. Course of a preliminary school (about 50 denominations).

(2).—EDUCATIONAL PORTION.

1. Domestic Instruction and Education (ante-school age) and kindergarten, likewise games, and educational employments in arts and trades (about 250 denominations). 2. Gymnastics (40 denominations and apparatus, manuals and models). 3. Music and singing (85 denominations of manuals and specimens of musical instruments). 4. Class furniture (about 60 specimens of class tables of various systems, boards and other appendages, as well as articles suitable for class rooms).

(3).—THE HYGIENIC MUSEUM.

(200 denominations of apparatus, preparations, models and drawings,) illustrating hygienic knowledge concerning air and its properties, water, food, soil, clothing and cleanliness, work and repose, and a library of popular works on hygienic subjects.

In all, the Museum possesses at present about 2700 denominations and 4000 slides for the magic lantern, systematically arranged for the various branches of knowledge.

(4).—PEDAGOGIC LIBRARY.

Attached to the Museum is a Pedagogic Library, consisting of above 12,000 volumes of pedagogic works in all the principal languages, and subscribing to about 50 periodical pedagogic publications.

2. The examination and testing of school apparatus, an estimate of their relative merits, and the introduction of improvements, are carried on by specially organized Sections of the Permanent Committee of the Museum, which manages the whole Institution, and consists of the President and four Members appointed by Government.

The said sections are formed chiefly of persons belonging to learned and educational corporations, voluntarily attaching themselves to the work; all the meetings therefore of the Committee and its sections are open to the public, and may be attended by any one taking an interest in the affairs of the Museum. The Committee and all its sections are presided by the same person. The perpetual members of the committee participate in the work of all its sections. The organization of special sections, of which there are 12 at present, was commenced in 1874.

During the past year the total number of individuals who took part in the meetings was about 3,000; there were about 200 meetings, the duration of each having been from 3 to 5 hours.

In pursuance of the above stated objects, the operations of the committee, among others, have been as follows:—

(a) Two explanatory catalogues of the Museum have been successively published. These catalogues contain a full description of the collections of the Museum, with a statement of their prices and the modes of using them, as well as special instructions for employing the various apparatus in each separate branch of learning and education. The last catalogue was published in 1872-3.

(b) Individuals have been invited from among teachers and tutors to assist in founding at the Museum a special pedagogic commercial firm, undertaking the obligation of having the establishment constantly supplied with an adequate stock of school apparatus, treatises and reading books, at prices which are regulated by the Committee of the Museum. This commercial firm is the appointed Commissioner of the Museum.

(c) The school apparatus, relating to some of the most important branches of instruction, has been divided according to the demands of teaching and the pecuniary means of schools, into the following groups:—(1) necessary apparatus, (2) useful apparatus, and (3) apparatus admissible in the presence of considerable pecuniary means, and after the first demands have been satisfied.

(d) A plan and method have been worked out for teaching courses of geography and cosmography in middle schools; a complete systematic collection of aids in these courses has been made by the help of private individuals. A portion of these aids was exhibited at the International Geographical Exhibition in Paris, 1875, and the Museum was awarded a "lettre de distinction" for them.

(e) At the initiative of the Natural Philosophy Section of the Committee the first cheap work-shop of physical apparatus has been established in Petersburg which has completed orders for seventeen physical cabinets of military schools. The same section has drawn up a programme and conspect of the course of Physics for those schools as well as a list of apparatus for the cabinets.

(f) A plan for the Hygienic section of the Museum has been worked out; the sanitary returns of fifty-two schools for two years, (15,000 pupils) have been examined, plans of classes and schools, and a system of gymnastics, etc., have been considered*.

(g) Two successive exhibitions have been arranged, geography, and cosmography and natural history, with a view of ascertaining what apparatus exists on these subjects, their degree of efficiency, what alterations and additions they may require, and how the cost of their production is to be reduced.

(h) The necessary preparations were made for enabling the Museum to take part at the following Exhibitions: the St. Petersburg Manufactural, 1870, the Moscow Polytechnic, 1872, the Paris Geographical, 1875, the International Exhibition in Philadelphia, the Educational in London, and the Hygienic in Brussels, 1876.

(i) A plan and system of public readings have been worked out for the uneducated classes, and upwards of 500,000 pamphlets of these readings have been published. A plan of similar readings designed for private soldiers is now being worked out.

(j) The formation of popular choruses has been commenced.

(k) A journal has been commenced for the special examination of school books, pedagogical works and school apparatus, and containing information regarding the operations of the Museum and its different sections, etc.

3. The means adopted by the Museum for developing and cheapening the local production of school apparatus were as follows:

(a) Discovering in the capitals as well as in the provinces fresh producers of school apparatus, and affording them gratuitous use of models and drawings, made by specialists, and in some cases supplying them with funds.

(b) Granting the right to every producer of exhibiting his specimens among the collections of the Museum.

(c) Examining Russian school apparatus through experts, granting certificates of approval, and spreading information regarding the best and cheapest apparatus.

(d) Arranging local exhibitions and bringing together the producers of apparatus and the representatives of school demands, and

(e) Sending specimens of the collections at the expense of the Museum to International Exhibitions, and at the same time allowing the producers to enjoy the rights of exhibitors.

Up to 1870 there were scarcely any Russian workshops of school apparatus in existence, and the demand for the latter was chiefly supplied by foreign articles. School apparatus was then very expensive; those brought from abroad on account of coming from second and third hands, and those made in Russia because of the limited number of producers and the want of competition, besides, being designed for rich families and for schools, the articles received the finishing of toys, and were made of walnut wood and mahogany, instead of pine and birch. Thus, arithmetical boxes were sold at 24 R, cubic quarters of an arsheen at 10 R, etc. The trade had not yet become specialized, and the purchaser had to lose much time and labour before finding the article he wanted.

* These labours are fully detailed in the pamphlet which accompanies the exhibition of the Museum to Brussels.

In 1870, the Manufactural Exhibition was opened in St. Petersburg; the Pedagogic Museum, as exhibitor, determined to avail itself of the presence of manufacturers in order to induce some of them to undertake the manufacture of school apparatus, according to given models, in the hope that a regular competition might ensue and schools be enabled to procure inexpensive apparatus.

Not having been able to induce a single manufacturer to undertake the proposed work, on account of the mistrust with which they regarded a great demand on the part of schools even with a price reduced to an extreme minimum, the Museum was compelled to adopt a course of action by setting the example; and thus to undergo the risk of incurring a useless outlay, with the assurance, however, in case of success of conferring a positive benefit on all schools and families. With this object in view, the Museum availed itself of the proposal of the Prison of the Marine Ministry, and gave an order for several copies of wooden apparatus for preliminary instruction, according to models which were on sale, recommending at the same time the use of the cheapest possible material. Accordingly, several articles of birch were made by the inmates of the prison, a mathematical cube, a cubic quarter of an arsheen, specimens of class furniture, etc., and the result was, that altho' these articles were paid for by the piece, their cost was just ten times less than of those offered for sale by the trade.

These articles were immediately placed at the Exhibition by the side of their originals (which in their turn were copies of foreign models), and both were labelled with the name of the producer, and the price of apparatus. The difference proved so striking, that as a mere matter of curiosity, it attracted daily crowds of visitors and excited the most lively discussions.

Thus the conviction first began to dawn of the practical possibility of producing cheap and accessible school apparatus.

Thanks to the notoriety which the circumstance obtained, occurring as it did at the Exhibition, and thus attracting the attention of a mass of visitors, and of the press, the Museum had no difficulty now in finding parties willing to undertake the execution of its orders, especially as it became known that the inmates of the prison were unable to execute all that was entrusted to them. The result was the establishment of the first private workshop of school-apparatus at prices even lower than those paid to the prison. The Exhibition enabled the Museum to support the first producers, by at once drawing the attention of the public to their articles, and thus supplying them with large orders.

In order, however, to carry on the work thus begun it was found necessary to adopt other measures with a view of attracting and encouraging producers. Besides it was felt that by a mere search after cheaper *reproducers* of specimens of school-apparatus, no important results could be achieved, for many articles, on account of the complexity of their construction could not be reduced in cost. It was found necessary to modify such apparatus to relieve it of its toy-like appendages, etc. Accordingly, still pursuing its previous mode of action, the Museum at the same time, began to look out for such producers as would undertake for a time at least to carry out its orders relating principally not to the reproduction of existing models, but to the execution of new specimens, according to the drawings of the Museum. Thus for instance a teacher in one of the technical schools was induced to execute several copies of a cheap model, illustrating the phenomena of the seasons of the year, and the phases of the moon. Altho' these models, (the price of both being 1 R. 80 c.) became unfit for use in a year's time, still the Museum was by their means enabled to prove the possibility of doing without expensive toy-apparatus which for some reason or other have not yet gone quite out of use. The above cheap models have greatly spread since 1872, and the price for both has not risen above 3—5 R.

In the same way the cooperation was secured of some individuals attached to educational establishments—and of workshops, even regimental ones.

By these operations, the museum exercised a powerful influence on the more extensive producers, always disposed to look down with contempt on the wants of the poorer buyer. The result was the rise of many small workshops, and a reduction in the cost of school-apparatus on an average not less than 50%, without any impairment in their educational merits. The success would have been still greater, had the museum been able to avail itself of the special manufacturers of cheap wooden articles in the provinces, but this was found impracticable for many causes. However, the idea was to a certain extent realized

in Moscow, whither a selection of school-apparatus was forwarded, and where a workshop was established in 1872.

By 1872, *i. e.* the year of the Polytechnic Exhibition, in Moscow, our schools were completely emancipated from the necessity of purchasing foreign apparatus in mathematics, cosmography, drawing, gymnastics, and all the subjects of preliminary instruction. The degree which the reduction in cost had attained is strikingly proved by the fact, that a complete set of apparatus required for a preliminary school did not exceed 140 R. in cost, whereas up to 1870, this sum was only sufficient to procure the apparatus for teaching the elements of arithmetic. In general, it can be said that the price of wooden apparatus had been brought to its minimum, the reduction in price not extending to articles of metal, as for example, the apparatus of a physical cabinet; which continued to keep high. Of course, in the beginning the success seemed more apparent than real, and it was only after the Polytechnic Exhibition that its reality could be affirmed with a certain degree of confidence.

Subsequently, the number of workshops began to increase rapidly, and they were established even in the provinces. Unfortunately, it became evident that nearly all these new workshops at the commencement of their operations would endeavour to draw attention by means of advertisements of newly invented and improved apparatus. A similar course of action not only diverted them from their true business, but inflicted loss, for schools and families regarding with scepticism the moral right of these workshops to the invention of new appears, refrained from buying them.

The task therefore devolved on the Museum of trying to point out what apparatus was actually necessary for military schools, and inducing workshops to turn out such apparatus in sufficient quantities. There was but one way of attaining this object: the Museum granted space for the exhibition of school-apparatus and then approved only those which satisfied pedagogic demands: such articles were labelled "approved for military schools." The measure was adopted in 1872. It led eventually to the necessity of commencing the organization of a permanent competitive exhibition of school-apparatus, with the admission exclusively of such as had previously received the approval of the respective special sections of the Committee. This permanent exhibition has been commenced within the last half-year and has already led to the establishment of a new workshop of physical apparatus, a portion of whose productions are now open for inspection. Thus, school apparatus which had hitherto kept its high price, being chiefly abroad, can now be made in Russia and at a cost which precludes the necessity of its being imported. The workshop promises to sell its productions at a reduction of 35%, but the special section of the Committee entertains the hope of being enabled to reduce the price still further, and with this view it has drawn up certain instructions for simplifying some of the articles, and for avoiding the use of expensive material in the accessory parts.

In summing up the results attained in the course of four years, it may be mentioned that (1) every variety of school apparatus can now be produced in Russia (with the exception of musical instruments, of which more anon), and (2), schools which up to 1870 were compelled to lay out a sum of 3,657 Roubles in the acquisition of a certain selection of apparatus in mathematics, natural history, physics, cosmography, drawing and music, are at present enabled to obtain the same apparatus for 1,350 R., thus effecting a saving of 2,300 R. or 63%.

In addition to and furtherance of the above measures, the Museum is undertaking the formation of travelling exhibitions, of an instructive and educational character, with the view of making provincial schools more closely acquainted with the most approved apparatus and of encouraging the production of such apparatus in the provinces.

And 4. The diffusion of knowledge is promoted by the following measures: (a) the Museum opens its collections and library for gratuitous use; (b) in its sections it carries on open discussions on questions of instruction and education; (c) it publishes periodically explanatory catalogues of all the collections of the Museum; (d) the members of its Sections contribute to a special pedagogical periodical; (e) public lectures are read on pedagogical and scientific subjects, as well as readings for the people and private soldiers; these lectures and readings are published in the form of small pamphlets.

In explanation of the social significance of these measures it must be observed that:

1. The use of the collections of the Museum for purposes of instruction began about

year and a half ago. It expresses itself by the independent occupations of learners, who come to the Museum for the purpose of verifying their knowledge by means of the apparatus there collected (especially in physics and natural history), or by the visits of entire classes with their teachers for lessons demanding apparatus inaccessible to schools, or finally by systematic lessons given to groups of pupils, especially in an elementary course of music and singing. During the year and a half there were 1754 such lessons given.

2. The contents of the Pedagogical Library may be made use of either on the spot or at home. The total number of visitors during the last four years was about 3000.

3. As has been already stated, two catalogues have been published. The first, in 1870, consisting of 23 printed sheets and 10 sheets of drawings, was sold at the low price of 15 cop., with the view of spreading a knowledge of the importance and due selection of school apparatus. The second catalogue was published in 1872, and the first supplement to it in 1873, by a private individual, who received pecuniary assistance in order to enable him to issue at as reduced a price as possible.

3. The public lectures were carried on chiefly with the object of diffusing information regarding correct methods of instruction and systems of education, particularly in homes and preliminary schools. The number of these lectures since 1871 (they are read only during the winter months) amounts to 140; they were attended principally by the educated classes of the capital.

Readings for the people were commenced in 1872. In the composition of these readings it is constantly borne in mind, that the listener is not only deprived of education but that he is even not desirous of acquiring it. Accordingly, every reading must fulfil the following requirements: (1) it must prominently set forward the practical utility of the subject treated; (2) it must be written in a style calculated to excite and sustain the interest of the hearer; (3) in order to be perfectly intelligible it must keep in view the degree of knowledge, notions and conceptions of the audience, and communicate new ideas as much as possible in images and picturesquely, without complexity, and must be complete in itself, in order to give a clear notion of an entire subject; (4) the aim of the readings is not to educate the people, since education can be acquired only by persevering independent labour, but to awaken a desire for self improvement; and (5) the readings must besides possess an external interest and they are therefore accompanied by dissolving views, singing, music, experiments, etc., it being understood that impressions, received through the organs of sight and hearing, and especially the first, are the most durable.

It has been decided, that the admission should not be free, in order to keep up a more serious regard for them, and therefore a trifling payment is exacted of 5 cop., that is half the cost of the very poorest dinner.

These popular readings are always delivered from a written text. Any one may send in the text of a reading, which is submitted to a thorough examination at the open special meetings of the Section of the Committee of the Museum, in the presence of the author. After due corrections in conformity with the established requirements, it is approved and is delivered in the auditory of the Museum, after which if it produce a useful impression, it is appointed to be printed. The number of readings sent in during the 4 years has been 420; of these 130 were accepted and 87 printed in 600,000 copies at the price of 5—10 cop. for 1½—2 printed sheets with pictures.

These readings bore reference to the following branches of knowledge:

(1) *Scriptural History* of the New Testament in connexion with descriptions of the Holy Land, and the History of Christianity in Russia.

(2) *History of Russia*, represented in biographical sketches, in correspondence with the degree of the mental development of the hearers.

(3) *Knowledge of Russia*, chiefly with reference to its industries and condition of the people.

(4) *Mathematical and physical geography*, illustrative of natural phenomena which excite superstitions, and likewise of agricultural and hygienic subjects.

(5) *Natural History*, chiefly with reference to agriculture and hygiene.

(6) *Popular Hygiene*, the physical education of children, notions about air, food, drink, construction of dwellings, dress, cleanliness, treatment of the sick until the arrival of the medical man, saving from drowning, freezing, suffocation etc., etc.

(7) *Literature* with a view of exciting a desire for the perusal of the best popular writers.

(8) *Ethics*, family life relations between husband and wife, to children, social self help, etc.), the influence of labour on the organism, the meaning of the repose, etc.

(9) *Technical knowledge*, including important inventions.

The readings are attended chiefly by the humbler industrial orders of the capital. With a view to the æsthetical development of the masses, a choir of 100 individuals has been formed, who are taught gratuitously on the proceeds of the lectures.

The readings for the army refer to general and military themes; they also bear an educational character, and have the same surroundings as the readings for the people.

In conclusion it will not be amiss to state that the readings for the people and privates, the public lectures and lessons were attended during 21 months of 1872, 73, 74 and 75 by about 215,000 individuals.

During the last five years the collections of the Museum were surveyed by no less than half a million of persons.

The collections of the Museum are purchased almost exclusively on the funds allowed by Government; all the other operations of the Museum are carried on without any subsidies.

The apparatus used in Russian schools, and specimens of which are collected at the Museum, may be divided into two categories: apparatus made in Russia and apparatus imported from abroad. Below will be found mentioned only Russian apparatus, which is despatched to the Exhibitions at Philadelphia, London and Brussels.

Of foreign apparatus used in Russia the greater portion come from England, France, Germany, Austria, Sweden, Norway and Denmark, but the Museum possesses many specimens made in other countries of Europe and in America.

Amongst foreign producers may be mentioned: (1) *Religion*: J. Schnorr (is published now in Russia), Desobry, Herder, Jarrold and Son, Cassel, Chapman and Hall, Schreiber, The religious tract Society, A. Keipert, Raaz, Th. Varti, Sampson and Son, Shotté, Knobeldorf, etc. (2) *Mathematics*: Born, Bopp, J. Bister, Lochmann, Hachette, Hestermann, Paravia, Schröder, etc. (3) *Natural History*: Anzoux, Professor Bock (Steger), Fleishmann, Hestermann in Altona, Fric (Praga), Guerin, Brendel, Eger, Erber, Margo, Millers, Hartinger, Schreiber, Ventzel, Achille Comte, Ruprecht, Wetschein (Würster, Randegger and Co.), Koot, Pape-Carpantier, Lüben, Schubert (is published now in Russia), Paterson, Henslow, Balfour, James Stewart, Henfreys, Wild, Brulow, Oliver and Boyd, J. Marshall (for the Department of Science and Art), Meinholdt (is published now in Russia), Kohler, Jonston, Hanns Kundrat, Roesel, Rosenhof, Ed. Wendt, Thinemann, Rieseling, H. Burmeister, H. Pompper, L. T. Fitzinger, Bouas-Lebel, Leutemann, Kny, etc. (4) *Political History*: Lammitz, Flinzer, J. Gilbert, H. Rheinhard, Em. Went, M. Fossey et El. Müller, Rohrbach, Brockhaus, Lübke and J. Kaspar, Lübke, Prof. Vogelein, Flaxman, M. S. G. D. Armengaud, Bouas-Lebell, E. Rhode, Th. König, A. Rheinhard, F. Voigt, W. Pütz Harrow, Drioux et Leroy, Houze, K. Spruner, R. Wedell, Delamarche et Grosselin, W. Rüstow, Kiepert, Freyhold, Clark, Breitschneider, Kiegler, A. Kretschmann, Bahrach, Langl, Cortambert, etc., etc. (5) *Geography*: Wenzel, Jauetz, Bruns, Whitall, Schotte, Roberts, Brockhaus, Braun, Smith, Burée, Maupérin, Hennequin, Schlosser, Ch. Thomas, Malby, Reimer, Kiepert, Nitschke, Molt, James Reynold, Justus Perthes, Raatz, Baur, Berghaus et Stulpnagel, Ervald, Vogel, Ravenstein, Kellner, Delitsch, Zeigler, Postumus et Kan, Institut des freres des Ecoles chretiennes, Uhlenbuth, Mentzer, Cornell, Pitschner, Collin, Haelsig, Keller, Meissus et Michelot, Graef, Ohmann, Holle, Rozat, Schäffer, Maniers, Cortambert, Schade, Leichtenstern et Lange, Lange, Adler, Sydow, Kloeden, Liebenow, Adami, Diell, Winckelman, Stieler, Weiland, Voigt, Chevalier, Guyo, Arrow-smith, Black, Jonston, Schau and Allen, Sorrensson, Ewald, Keipert, Graef, Graef and Bruhns, Stein, Hoffmann, Bazin et Cadet, Bouffard, Bonneau et Laurent, Delagrave, Hachette, D. Reimer, Lassailly. (6) *Natural Philosophy*: The apparatus were brought out of Saxony, München, London, Paris, etc. (7) *Drawing*: Willer, Hutter, Fr. Gillet, John Bell, Davidson, Hardin, Hendricks, A. Deacon, Heimerdinger, Chamber, Voltz (author of "Drawing for Young Children"), W. Hermes ("L'écolier parisien"), Carpenter, G. Hicks, Calame, Julien, (Ecole française contemporaine), Noble, Méthode Cassagne, E. Herdtle, G. Köller, G. Richson, C. Flemming, Cassell, Victoris, H. Troschel, Stuhlman,

Graber, L. Schrader, Dupuis fr., Hachette et Co, Institut des frères des écoles chrétiennes, H. Weishaupt, G. Hahn, J. Carat ("The school of Raphael, or the student's guide to expression after the most celebrated heads in the cartons at Hampton-court, New York"), W. Lübke et J. Caspar, M. J. G. D. Armangaud Lamoutte, Al. Studnicke, G. Lelabar, Leybold, Vignola, Klimsch, etc. (8) *Calligraphy*: Koch, Werlet, Berger, Hagenmaier (Gallery models, or examples of letters, etc.), Picquet, Darnell, P. Callewaert, Poitiers-Henry Oudin, Victorin, Rightmyer (New York), Ad. Henze, V. Stölzer, etc. (9) *Singing and Music*: Rode, Drath, Baptiste Ed., Chervin aîné, Jérôme, Thibouville, Moritz Gläzel, Schuster jun., Held, Jochem, Alexandre, Dandu, Schoen, Hamel, Schubert, Weiss, etc. (10) *Gymnastics*: M. Roth, Ph. S. B. Carue, Paz, etc., etc.

Above have been pointed out the means adopted by the Pedagogue Museum in attaining one of its chief objects: acquainting schools with apparatus produced not only in Russia but in foreign countries. The majority of specimens have been purchased and but a very small portion presented to the Museum. It would be very desirable if foreign producers would kindly bear in mind the aim pursued by the Museum, and consent to forward their specimens to the permanent exhibition. Letters (frankel) on this subject to be addressed to the President of the Committee of the Pedagogic Museum, St. Petersburg.

IV.—SKETCH OF THE SOUTH KENSINGTON MUSEUM, BY P. CUNLIFFE OWEN.

"Much has been said of late years in this country concerning the famous museum and art school established by the Government of Great Britain at South Kensington, England. We make below some extracts from a "memorandum upon the formation of the South Kensington Museum," prepared under the direction of Mr. P. Cunliffe Owen, British Commissioner, to the Centennial Exhibition,* for the use of the committee having in charge the organization of the museum of art in the city of Philadelphia. We copy from the *Penn. Monthly*:

"It is now seven-and-thirty years ago that, influenced by the declared opinion of the public, the British Government was in the year 1838 induced to take into serious consideration the art education of the people; in that year a School of Design was established under the then President of the Board of Trade at Somerset House, having for its object "the training of designers to improve the patterns and designs used for manufactures." The progress of the undertaking at first was very slow, for in the course of twelve years the number of branch schools which had been established in the provinces for promoting the same object amounted to only twenty-one. The exhibition of 1851, however, gave a great impetus to the work, for in that grand exhibition of the art manufactures of most of the countries of the world, the comparison of British workmanship with the art-industrial productions of other nations revealed to the Englishman, that although his handiwork might well compete with any in point of honest and skilful execution, yet in respect of beauty of design it was far behind that of some other nations. The result was the formation of the present Department of Science and Art under Her Majesty's Committee of Council on Education. It was soon considered necessary to provide a collection of objects illustrating the art-workmanship of bygone ages, not only as practised in this country, but in all the civilized nations of the earth, to serve as examples in guiding the art-education of the student. And with this view a nucleus of a permanent museum of works of art was formed at Marlborough House, now the residence of H. R. H. the Prince of Wales; the objects there acquired, by means of moneys granted by the state, form part of the important collections of the South Kensington Museum, which is now the central depository of all works of art, pictures, books on art and education, engravings, etc., collected by the State to serve in aid of the art-education of the public.

"*The Collections*.—The collections at South Kensington Museum now comprise:

- "1. Objects of Ornamental Art as applied to Manufactures.
- "2. The National Art Library.
- "3. British Pictures, Sculptures and Engravings.

* This gentleman has since been appointed Secretary of the British Commission for the Paris Exhibition of 1878, of which the Prince of Wales is President.

- "4. The Educational Library, with appliances and models for Scholastic Education.
- "5. Materials and Medals for Building and Construction.
- "6. Substances used for Food.
- "7. Reproduction by means of Casting, Electrotype, and Photography, of objects displaying the Art-manufactures of all nations.
- "8. Naval Medals.

"These collections have been acquired by means of sums of money granted from year to year by the Parliament. This system of purchase by the state was commenced in 1838; a sum of 10,000*l.* was voted in 1849 for the purchase of examples of art for the schools of design; 5,000*l.* was granted by Parliament for the acquisition of examples of art from the exhibition of 1851; in 1855, 20,000*l.* for the purchase of specimens; and up to the year 1860, 50,000*l.* had been expended by the State for these collections, in securing specimens, with the view of exhibiting the efforts of the artist in combination with the workman, not only in England but in foreign nations, dating from the period of the revival of the arts in Europe. Since 1860, the scope of the museum has been much extended, and reproductions of some of the more important monuments of ancient art have been added to its collections, and the amounts voted by Parliament have been proportionately increased.

"*The Museum of Ornamental Art* was established in 1852, when, by permission of Her Majesty the Queen, a suite of rooms in Marlborough House was appropriated to the reception of the various art-manufactures, comprising pottery, glass metal-working, furniture, textile fabrics, enamels, etc. This museum remained open to the public until February, 1857, when it was closed for the removing of the collection to the iron building at South Kensington, which had been presented to the Government by H. M. Commissioner for 1851. In 1856, a sum of 10,000*l.* was voted by Parliament for removal of schools. This important division of the museum contains at present a collection of ancient, mediæval, and modern art workmanship of various countries, acquired by purchase, gift, and bequest comprising upwards of 20,000 objects, in addition to a grand collection of reproductions of art-objects in other national collections, which have been obtained by the electrotype process, or by castings in plaster, and which are deemed to be of great importance as models for guiding the art-student.

"*The National Art Library* contains about 33,000 volumes. This collection of books differs from most of our national libraries, inasmuch as it has been chiefly acquired by moneys granted by the State for the special purpose of art-teaching, and the books have nearly all been selected by competent judges appointed by the committee of Council on Education. The art library also contains 10,000 drawings, 23,000 engravings, chiefly of ornaments, and 36,000 photographs.

"*The Collection of British Pictures* at South Kensington was commenced by the gift of Mr. Sheepshanks, who, in presenting his pictures to the nation, stipulated that they should be kept in a suitable building in the immediate neighbourhood of Kensington. The value of this gift, which comprises some of the choicest pictures of the British school, was then estimated at 53,000*l.*, but it is now worth a considerably larger sum. This gift was followed by other donations of pictures, and the galleries now contain 585 oil paintings and 1,005 water-colour drawings, specimens of the works of the best British masters, nearly all contributed by private individuals for the advancement of the public art-education of this country.

"*The Collection of Sculpture* consists chiefly of decorative sculpture of the Renaissance period in marble, stone and terra cotta of the 15th century, known as Della Robbia ware.

"*The Education Collection* was begun by the Society of Arts, and first exhibited in St. Martin's Hall, in 1854, after which exhibition numerous objects were presented to the Government to form the nucleus of an educational museum. These were added to the other collections at the South Kensington museum, and this collection has now, by means of the voluntary contributions of the publishers of educational works, and by the aid of the State, become a very important branch of the South Kensington museum, seeing that its library contains upwards of 20,000 volumes of educational books, and the collection of models and appliances for educational purposes numbers some thousands of specimens.

"*Materials for Building and Construction.*—Then nucleus of this collection was formed partly by gifts and purchases from the exhibition of 1851 and from the Paris Exhibition

of 1855. It has since been greatly increased and chiefly maintained by the voluntary contributions of building contrivances offered for exhibition by the inventors of the same. It comprises samples of building stones, cements, terra cottas, bricks, fire-proof floors, ornamental tiles, enamelled slate, specimens of woods for construction, &c.

"Substances Used for Food.—The Food Museum was first established and became part of the South Kensington Museum in 1857; it is arranged with the express object of teaching the nature and sources of food, representing the chemical composition of the various substances used as food, and the natural sources from which they have been obtained. This collection has lately been removed to the Bethnal Green Branch Museum.

"Reproductions by electrotype, by casting, and by photography, of historical art-monuments and of art-objects existing in the collections of other countries, have been obtained and used, not only for exhibition in the South Kensington Museum, but to furnish models for the use of students in the 2,085 schools of art in the provinces. Many such objects, of great educational value, have been secured by the convention for international exchange of reproductions of art-objects, made by some of the leading powers of Europe at the Paris Exhibition of 1867.

"Naval Models.—In the year 1864, the collection of the naval models belonging to the Admiralty was removed from Somerset House to South Kensington. This collection has, for educational purposes, since been transferred to the royal naval school at Greenwich; but during the time of its remaining in the galleries secured for its exhibition by the authorities at South Kensington, so many acquisitions were made that the collection now belonging to the nation exhibited at South Kensington has become very important, especially in models and appliances for modern warfare.

"Loans from Private Collectors.—In addition to those important collections of art-objects acquired by the state, the South Kensington Museum contains in one of its courts, especially devoted for the service, a large collection of art-objects on loan from various private owners, who desire to co-operate with the government in carrying on the art education of the public. Objects lent for exhibition are accepted on the understanding that they remain for a period of not less than six months; and although every care that the state can command is guaranteed for such deposits, the authorities of the museum do not hold themselves responsible for loss or damage. Numerous special loan exhibitions of great importance have also been held, the last being that of enamels on metals, opened in June, 1874.

"Circulation.—From the first formation of the museum collections, a system of circulation of selected objects for exhibition in aid of schools of art in the provinces has been in force. Since 1864, this system has been much extended; contributions have been made to 245 exhibitions, and the number of ascertained visitors to these has exceeded five millions. The museum, as a general storehouse for objects which can be sent to schools of science and art, has under the term "circulation," three distinct classes of objects, which are distributed under the following heads:

"1. Examples furnished to schools of art and science for stated periods for the purpose of study.

"2. Original art-objects, paintings, electrotype reproductions, etc., for exhibition in connection with schools of art.

"3. Circulation of reproductions by various processes, electrotype, photography, etching, chromo-lithography, etc., sent on deposit loan, to be retained by the schools for a period of one or more years.

"Cost of Collections in Museum to 1874.—Although these valuable collections have been very much enriched and increased by the liberal donation and bequests of private collectors, their accumulation has been mainly achieved by monetary grants from the state, the amount of which has for several years exceeded an average of 22,000*l.* sterling per annum. The total cost to the nation of the South Kensington Museum, including administration, building and collections, to the 31st of March, 1874, is stated in a Parliamentary paper to amount to 1,191,709*l.* 17*s.* 4*d.* Of this the sum of 281,672*l.* 6*s.* 1*d.* has been applied to the purchase of the collections.

V.—PENNSYLVANIA MUSEUM OF INDUSTRIAL ART.

It is probably not generally known that the Pennsylvania Museum of Industrial Art has been granted the use of Memorial Hall, in the Centennial grounds, for the purpose of establishing a great Art Museum, and connecting therewith schools of art. . . .

The purpose of this museum and of the schools to be connected with it is a practical one. In the first place, it is designated directly to prepare skilled workmen for our mills and shops; but, indirectly, through our public schools, its great aim will be to make industrial education general. The plan of its projectors contemplates the establishment of a great Normal Art School, where teachers can be trained to give instruction in our public schools.

A Boston gentleman, recently in Philadelphia, after having visited the Museum and conferred with its managers, writes home to one of the newspapers the following account of what he learned:—

"The plan of the proposed Museum is a very broad one. It consists of two features: First, the Museum and two special schools directly connected therewith, one a school of industrial drawing and design for technical and advanced instruction of artisans and designers; the other, a normal art training school for the training of teachers to teach the elements of drawing and design in public schools, in secondary art schools and evening classes; second, the introduction of drawing into all the public schools as a regular branch of study, and the establishment of special or secondary drawing schools or drawing classes in the different cities throughout the State, in which the practical elements of this subject shall be taught, and from which students may pass to the technical school attached to the museum as to a higher school, thus providing for a high degree of technical training on the one hand and a wide dissemination of elementary instruction on the other.

"It will be observed that this plan is very comprehensive, and combines the best features of the South Kensington Museum for higher technical instruction with the system of elementary instruction which we have developed so successfully in this State. There is every prospect that this plan will be fully carried out.

"With the full development of this plan, Pennsylvania will have the most comprehensive and complete system of art education of any State or country. It will be superior to the English system, in that its basis will be laid in all public schools.

"Its practical benefits upon the material prosperity of the city and State will be such as to exceed what its most enthusiastic supporters would at this day venture to state. If this language seems extravagant, I can only refer to England's experience with her South Kensington Museum, which within the short space of twenty years has not only revolutionized many branches of English industry and created several new ones, but has become a grand representative storehouse of the industry of mankind, as well as the envy of the world.

"We are becoming an industrial people. On every hand we see the evidences of this fact. In many of the States, particularly in the New England and some of the Middle States, the larger part of the population is engaged directly or indirectly in industrial pursuits. In Philadelphia alone, the value of manufactured products is over \$550,000,000 per year. It becomes, therefore, one of the most practical questions how these industries can be best promoted, for it is upon their prosperity that no small degree of public wealth and comfort depends. Experience teaches that education is the best and cheapest factor in their healthful development, and both experience and observation show that the kind of education which is the most needed is that which will develop skill among the producers, and secure good taste in its applications. This education, to be of practical usefulness, must be brought within the reach of those who need it, and must needs be taught to them along with other fundamental studies. Hence the widespread demand for drawing in the public schools, which is the only study in public schools that touches this phase of practical life. Hence this demand for industrial drawing schools

for the benefit of the adult mechanic and artisan. Hence these industrial museums to illustrate, by masterpieces of industrial workmanship, not only the special applications of beauty to use, but the principles which should be observed in its application.

"In short, the day of the mechanic and artisan has come. The cheapness of transportation is opening the markets of the world to the labours of his land. In these markets there is destined to be sharp competition between the leading nations, and national supremacy and national prosperity are to depend in no small degree upon success in this competition. For this contest England, France, Germany, Austria, Italy and Russia, are preparing on a scale, and with a thoroughness, which should excite our liveliest concern; and all these efforts are devoted to increasing the productiveness of labour by means of education. We should do no less.

"If the Centennial had one lesson for us above all others, it was this: Prepare for this competition, and prepare for it at once. Already, from the science and art schools of England, from the industrial schools of Germany and Austria, and from the industrial drawing schools which are scattered over France, an army of workmen are entering their respective industries, instructed in the principles of art-science to such an extent that, in all the higher and more valuable branches of industry, we cannot expect to compete with them outside of our home material; while in the home market itself we cannot long expect successfully to oppose the ignorance of our own workmen to their skill and taste.

"No language can be too strong, no efforts too earnest, in urging upon our people the necessity of immediate preparation for the contest, for it is to be observed that the results by which the danger alone can be averted, can be secured only by the slow process of educational development."

VI. STORE AND BOOK DEPOSITORY OF THE LONDON SCHOOL BOARD.

A Committee of the London School Board have recently made the following report on the establishment and maintenance of a "Store and Books Department" or Depository:

"It will doubtless be in the recollection of the Board that its earlier arrangements for supplying its Schools with books, maps, apparatus, &c., were with agents, who gave to the Board liberal discounts.

"At length that arrangement appeared to the Board to have disadvantages which might be removed by the adoption of some other. After consideration of the various alternatives presented to it, the Board finally adopted that of a Store of its own, in charge of an officer of the Board.

"The probable advantages of this plan appeared to be in the direction (1) of economy, and at the same time (2) of an improvement in the quality of goods, and (3) of increased expedition in their supply.

"(1) As to economy. It appeared from the exceptionally large quantities of School materials which the Board required that, by entering into contracts of its own, and by direct transactions with publishers and manufacturers, the Board would purchase on much better terms. (2) As to quality. It was believed that the many and often serious defects which occurred in contract goods could be removed only by direct contract with contractors, and by a uniform comparison of their goods when delivered at the Schools—a plan impossible under the old arrangement. And (3) As to expedition. It was hoped that, by directness in ordering, and by keeping necessary stock always on hand, the various causes of delay in the supplying of goods to Schools would be removed.

"The Board accordingly established a store, which was commenced in January 1875; but, owing to the nature of agreements with its previous agents, the old plan remained in partial force until the 25th of the following March. Since that date all arrangements with publishers, manufacturers, contractors, carriers, &c., have been made by the Board direct, and the new store plan has been in full operation.

"One year's experience of that plan is, therefore, just published (March 25th, 1876), and the Committee are now in a position to report as to how far the various anticipations of the Board have been realized.

"In the first place, as to the more economical supply of school books, stationery, apparatus, &c. After charging to the account of these things all costs of staff, premises,

&c., the year shows a saving of £2,446 19s 8d. That is, the sum which has been paid for supplying our Schools with goods under the present store arrangements—all cost of store taken into account, is £2,456 19s 8d less than the sum which would have been paid had the original agents' arrangements been in force. The particulars of the account are set forth in the accompanying balance-sheet. It may be well to state that this fact has been arrived at in the following way. Every article supplied by the Store has been charged in the School Accounts, at the discounted price formerly paid to the agents, and the total of these School Accounts has been finally compared with the total price which the Board actually paid.

"As regards both the second and third parts of the Board's anticipations, viz.: the insuring that (1) contract goods should be uniformly according to tender sample, and (2) that the execution of Teachers' orders should be more prompt, the store plan has been followed by equally satisfactory results. In addition to the direct testimony of the records of the store, the Committee have the best possible indirect testimony that the evils referred to have been removed, in the fact that Teachers' complaints on these points, once numerous and reasonably made, have almost altogether disappeared. In this respect alone the experiment of the store has been fully justified.

"It may be well to remind the Board that the most sanguine advocates of the store did not anticipate that, by its establishment there would be a reduction of expenditure to the extent of more than £1,000 per annum, whilst the actual reduction has been upwards of £2,400. It is only just to state here that in no small degree is this unexpected success due to the very exceptional fitness of Mr. Frater, for his post as Store Superintendent.

"It may be mentioned that, in addition to the special duty of the Store Department—the supplying of schools with school materials—to it has been referred the arrangements for issuing and registering Punctual Attendance Cards and Rewards, and Examination Certificates, by which the General Office is relieved of considerable labour. The store also collects from schools all waste paper—reading books unfit for further use, used copy-books and writing-paper, &c. The arrangements for this are only just completed; but it is probable that about £400 per annum will be realized from this source.

"Your Committee have also to report that they have an arrangement now approaching completion, by which there will be provided elementary schooling for the blind in the ordinary classes of every Board School. They have induced publishers for the blind to render some of the most extensively used school books into blind character, so that a blind child may be able to read at the same time and in the same class with its seeing brother and sister.

"The plan, it is believed, will have many advantages. It will probably exercise a humanizing effect on ordinary scholars, and it will undoubtedly prove a great boon to blind ones. It will leave their family relations undisturbed; it will dispense with the necessary means of conduct to the present special and generally distant schools; it will greatly enlarge the region of their possible knowledge; and, above all, it will provide for them schooling under conditions more natural, cheerful and stimulating.

"As regards cost, it is satisfactory to report that this new method will be economical.

"Your Committee would have it distinctly understood that, though the idea originated with the Board, the Board is in no sense the publisher of the books, neither has it any property whatever in them. They will be procured in the ordinary way of business, and may be had by any school in the Kingdom.

"The Committee take this opportunity of reporting as regards the method that it adopts in relation to the question, What Books, Apparatus, &c., may and may not be used in the Board Schools?

"It is the practice of publishers to forward copies of their elementary school publications to the Board. On receipt, the Committee refers the question of their merits to those of its members who have special qualifications for judging in the particular subject on which they treat. The report of these members is written, and states the reasons for approving or condemning the books; also, in the case of approval, whether approved for scholars' or teachers' use. This report is submitted to the Committee, considered, and,

if there be concurrent judgment, adopted, or, if this be not the case, it is referred back for further report.

"A similar course is adopted in relation to every other article of school use submitted to the Board.

"It may be interesting to the Board to know that during the past year 802 books, and various articles of school use have been considered by the Committee.

"When a book is approved, it is placed upon the Teachers' Requisition Form (Form 32), which is the list of all books, maps, apparatus, &c., which *may* be used in the Board Schools, from this list managers and teachers are at liberty to make their own selection, subject only to one condition, viz., that the total cost of the things selected must not be at the rate of more than the allowed sum per head per scholar in their schools. A room has been set apart in the store where may be seen a sample of every article this list contains.

"The Committee think it well to say that they are by no means severe in their judgment. They are desirous, on the one hand, to avoid discouraging school publishers; and, on the other, to keep out of Board Schools all books which have undoubted and serious defects. They have sought, too, to place upon the Requisition list, books, &c., from which, as far as possible, teachers might be able to make the selection best suited to their own individual tastes and habits of work. The Committee, therefore, do not wish it to be understood that they entirely approve of every book, &c., upon their list.

"In conclusion, the Committee have to report that the new premises, on which the Board entered at Christmas last, are excellently adapted to their purpose."

STATEMENT showing the operations of the Store under the new arrangement (for a period of one year—viz., from Lady-day, 1875, to Lady-day, 1876), as compared with the arrangements previous to Christmas, 1874.

Amount expended for Stock, and charge for Working Expenses.		Cost which would have been incurred under old arrangement for Stock actually distributed to Schools.
Stock on hand, March 25th, 1875	£2,062 9 0	Books, Apparatus, &c., distributed to Schools, and calculated at rates previously paid to Agents..... £21,019 16 3
Purchases of Books, Apparatus and Stationery	18,275 11 6	Charge for Stamping Books, &c. (1½ per cent. on £19,675 less old), at rates previously paid to Agents, being now done at Store..... 205 3 3
Insurance of Stock and Buildings	217 14 6	Carriage of Goods to Schools, at rates previously paid..... 282 16 7
Carriage of Goods to Schools	801 16 5	Part Salary of Clerk in Finance Department for checking accounts, which are now checked at Store..... 20 0 0
Solaries and Wages	118 15 0	
Rent, less tax, New Bridge Street. Three quarters	100 0 0	
Rent, Milford Lane. One quarter, say at £400 per annum, in place of interest and repayment of amount expended for Purchase of Premises and Legal Expenses, Fittings, &c.	19 6 5	
Repairs on Buildings, &c., New Bridge Street	40 9 0	
Rates and Taxes	15 5 0	
Coal and Coke	24 8 3	
Gas	22 3 8	
Furniture, &c., calculated at 20 per cent. per annum on £110 18s.	150 0 0	
Interest on Capital sunk (say £5,000) at 5 per cent. per annum.	18 12 2	
Postage	41 5 2	
Sundry Expenses (pretty cash)	£22,019 6 7	Cost of Goods supplied to Schools under old management..... £21,017 16 1
Less Stock on hand	2,848 10 2	
Net Cost of Goods supplied to Schools, with charge for working expenses	£19,170 16 5	
Balance	2,446 19 8	Difference between cost of new arrangement and old, being amount to credit of Board for twelve months..... £2,446 19 8
	£21,017 16 1	

(Signed) { J. RODGERS, *Chairman*.
BENJAMIN WAUGH.
R. MAGUIRE.

VII.—DEPOSITORY FOR SCHOOL APPLIANCES IN PARIS.

The British Commissioner in his Report on the Educational Exhibits at the Vienna Exhibition in 1873, states that one of the "most remarkable" models exhibited at Vienna was "of the admirable establishment recently created in the City of Paris for issuing to the Schools. . . . Everything they require in the shape of educational furniture, books, apparatus and material, all of the most approved description, and in great part manufactured on the premises.

Further on he says :—"A special collection of Educational objects was exhibited by the City of Paris. It included a highly interesting model of the dépôt recently established for the supply of school furniture and material to the various primary schools throughout the arrondissements.

"In taking measures to repair the disasters which preceded and followed the signing of the treaty of peace with Prussia, on the 26th February, 1871, the extreme desirableness of such an organization became apparent. The necessary steps were at once adopted, and under the direction of M. Gréard, Inspector-General of Public Instruction and Director of Primary Education, the work has been so far happily accomplished.

"The large scale of the model exhibited at Vienna, enabled us to form a very clear general idea of the arrangement of the buildings and of the plan of operations carried out in them; and a personal visit which I have since been enabled to pay to the establishment, under the guidance of M. Gréard himself, and of his able coadjutor, M. Boyer, has more than confirmed the estimate I had already formed of its value.

"The principal building is traversed throughout its length by a central avenue, having on either side at about half the height of the building, a broad gallery. Folding doors sufficiently large to give passage to a loaded waggon, close this avenue at each end. The galleries are chiefly used for stowing desks, benches, tables, easels, blackboards, and other articles of school furniture. All supplies are delivered in the central avenue on the ground floor, and are thence readily hoisted to the galleries by means of an elevator. Other stores and workshops are conveniently grouped around this principal building.

"The importance of this service thus performed is at once apparent, for the official returns (*L'Instruction Primaire à Paris, et dans le Département de La Seine, 1871-1872*), will show that during the year ending 1st October, 1872, additional accommodation was provided for nearly 20,000 children, distributed among 17 infant schools, 127 boy's schools, and 125 girls schools, involving the issue during less than seven months, of 3,800 new tables, more than 1200 tables repaired, 650 benches for play-ground use, 240 desks for teachers, and 137 for monitors; 575 chairs, 250 school libraries, 200 pair of steps, 250 blackboards, 250 easels, and 325 clocks; besides more than 1,500 wall maps, globes and illustrations of the metrical system, 1,822 curtains made and fixed, and various small articles of furniture to the amount of nearly 9,000 francs. Since that period the completion of the establishment has been carefully prosecuted, and it is now effectually accomplishing the various objects for which it was created."

These are :—

(1.) To issue once a quarter to all the primary schools of Paris, such supplies of furniture, apparatus, books, and other school material as they may need.

(2.) To provide in urgent cases for their immediate wants, and for accidental repairs.

(3.) To watch carefully over the quality of all goods and articles required for school use.

(4.) To adopt such improvements whether of form or of construction, as experience may suggest.

"For the accomplishments of these objects, the institution retains a moderate staff of skilled workmen whose interest in their duties is very apparent.

"Books, stationery, and large quantities of other articles are purchased, most of the wooden furniture is manufactured on the premises, and also some of the metal work.

"The whole establishment is carefully organized and administered, and its utility seems unquestionable."

"The School Libraries are for the use of teachers as well as scholars.

"They comprise three classes of works :—(1) Dictionaries : historical, geographical,

and scientific; (2) Books of reference for school study; (3) Instructive and amusing works for general reading. Each library consists of about 40 volumes, approved by the Prefect of the Department."

VIII.—EDUCATIONAL, OR PEDAGOGIC, MUSEUM AT WASHINGTON.

FROM THE REPORT FOR 1876, OF GENERAL EATON, UNITED STATES COMMISSIONER OF EDUCATION.

I.—I have mentioned among the educational results to be sought from the exhibition, the establishment of educational museums or collections of educational appliances. Our deficiency in this respect is a source of constant embarrassment. Many of our teachers and school officers have no opportunity of knowing what these appliances are, or of keeping up with their improvements. It has been my desire, in conducting this office, to secure as necessary aids to its work, and as special benefits to our systems and methods of education:—

1st. An educational library, where publications upon the subject could be gathered from all quarters of the world, and such publications made available for American educators. A small sum has been annually appropriated by Congress for this purpose. The use of this, and the exchange of documents, have made the library already one of great value. I have purchased for it most of the private collections made by my predecessor, Dr. HENRY BARNARD. I have also desired to secure for the same purpose:

2nd. An educational museum or collection of educational appliances, but neither money or space has been afforded for such a collection. As I have at different times mentioned, several foreign Governments have invited exchange of these appliances—some have sent articles; but I have not been able to return in exchange, and have not been able further to respond to that courtesy than to send the publications of the office.

Since the announcement of the International Centennial Exhibition, I have hoped that it might afford the occasion for the organization, in connection with this office, of a national educational museum. The cost would be slight, and the benefits to our education invaluable.

The commencement of the Kensington Educational Museum under the auspices of the most enlightened English friends of education, in connection with one of the world's fairs at London, is well known. The effect upon English skill and intelligence has been incalculable.

In connection with the Vienna exhibition, a somewhat similar movement was commenced in that city. A recent writer, referring to it as "the permanent educational exhibition," observes that "it receives universal approval, and its beneficial results surpass all expectation."

The first number of the Journal of the Educational Museum at Rome, Italy, has just been issued. From this the following remarks are translated:

"This museum, as is well known, owes its origin to a visit to the World's Exposition at Vienna, made by the distinguished gentleman who now rules over the destinies of public instruction in the kingdom. It only dates its legal existence from November, 1874, called to life by the joint exertions of the Minister of industry and commerce. . . .

"It has already been likened to a permanent exhibition. This Journal will now give it the character of a permanent, and, at the same time, circulating exhibition. . . .

"To illustrate the collections which are in the museum, and which are being formed, is a much greater task than might seem at first sight. In the first place, there is no educational implements or apparatus which could not give rise to researches and observations, and form the subjects of descriptions, examinations, comparisons, and manifold discussions. . . .

"It is by this not merely intended to make an appeal to teachers or superintendents. The museum and the Journal, its representative before the public, would not think that it had done all the work assigned to it if it did not likewise have the co-operation of those who, in a less personal, direct, or official manner, are interested in the cause of education. Through the school-house, apparatus, furniture, text-books, maps, charts, and other scienti-

fic and literary aids, many persons are more or less interested in education, who do not devote all their efforts to it, but whose experience will nevertheless be of great value. The general condition of our country certainly justifies all this, and easily explains it: for in this regard it has various sides, and, not always unjustly, has been blamed; but this must often be ascribed to these or those persons not having exerted themselves enough, while the case would be entirely different if the people would not with all the greater zeal seek to obtain the very best that could be obtained."

ONTARIO.—Many of our educators are familiar with the successful efforts of the Rev. Dr. RYERSON and his able deputy, Dr. HODGINS, of Ontario, to secure these great aids to education in that Province. Their example would seem of itself sufficient to secure adequate action in the United States.

RUSSIA.—Among the noted and efficient organizations of this character should be mentioned the so-called Pedagogic Museum, under the direction of the Russian Minister of War. Founded in 1864, it has become one of the most efficient agencies for the promotion of general as well as military education in that empire.

II.—A second educational result sought from the exhibition is the preparation of full and accurate reports on the various phases of education in the country. The efforts made to quicken, increase, and render effective the collection and publication of educational history have already been mentioned. As a result, great activity is already reported in this work. The office is doing all in its power to generalize these results, and make them available for our country and the world, and hopes to gather rich fruit from the labours and publications of experts from our own and foreign countries after the display closes.

IX.—DEPOT FOR BOOKS, MAPS, ETC., AND MUSEUM IN QUEBEC.

FROM THE REPORT OF THE HON. G. OUMET, CHIEF SUPERINTENDENT OF EDUCATION, PROVINCE OF QUEBEC, 1876.

Adopting the language of the report of his predecessor, Hon. Mr. De Boucherville—Mr. Oumet says:—

"I must insist again, this year, on the necessity of establishing at once a dépôt for books, geographicals, maps, terrestrial globes, and other school furniture. Enough attention has not been paid to this project, which would, nevertheless, give considerable impetus to the working of our schools. It is at present extremely difficult to procure these most necessary articles for our schools. They are very scarce, and the prices of them are so high as to be out of the reach of the most willing. By means of these dépôts of which I speak, the price could be reduced one half, which would authorize us to force all schools to purchase them.

"A lot could be placed in the hands of the secretary-treasurer of each municipality, who should undertake to distribute them amongst the teachers as they are required. No pupil would then be without those objects which become necessary as his education progresses. The whole would be bought in the name of the municipality and furnished on demand. A slight increase in the tax would suffice to cover these expenses, and parents would find their children better and more cheaply provided for."

"I will not insult any one's intelligence by undertaking to prove the truth of these remarks. The materials and apparatus of our schools will be insufficient so long as a dépôt for books, maps, globes, &c., does not exist in the Department of Public Instruction. Common sense should show that 4,030 schools will not be sufficiently provided for, if the care of doing so is left in the hands of each separate teacher or municipality. For these reasons the Legislature should no longer delay the establishment of such a dépôt in this Department.

"The importance of a school museum is equally evident, as, without it, the officers of the Department of Public Instruction must experience great difficulty in keeping up with the improvements made in the furnishings and apparatus used in foreign schools."

At the last session of the Legislature of Quebec, a grant of \$15,000 was made for a dépôt of books, maps, globes, &c., in the Public Instruction Department. This, the Provincial Treasurer intimated, was a new grant altogether, and was intended to create a

store-house whence schools may be supplied with necessary means, and apparatus of a uniform character, and at prices below the present.

In a recent circular to School Trustees and others on the subject, the Superintendent of Public Instruction for the Province, thus explains the object of the grant. He says:

"The 29th clause of the law enacted last session authorizes the establishing, in the Department of Public Instruction, of 'a dépôt of books, maps, models, specimens, apparatus, and other school furnishings,' and a temporary credit to the extent of \$15,000 has been opened for this object. The measure is one of the most important that has ever been adopted, relative to Public Instruction, in this country. In a few words I will explain to you its nature. A system of Public Instruction was organized in our Province in the year 1841. Since that time, the Superintendent, or the Council of Public Instruction, having control of the regulation of the text-books and equipments for Schools, has been obliged to limit the surveillance over these to articles brought into market, that is to say, sold by the booksellers. But many of these articles are very defective in comparison with others more modern. Grammars and geographies, which you yourselves used long ago, have now lost their value through the publication of similar but improved works. Progress in this direction need surprise no one. Is it the same with respect to School books, &c., as agricultural implements—we are always on the look out for the means of perfecting them. It is true, the Council of Public Instruction has not lost sight of those improvements, nor failed to approve and recommend good manuals whenever these were published; but the law left full liberty to the municipalities to buy for themselves the old and the new works alike, and it is easy to see that the publishers had an interest in not causing the old ones to be displaced by offering you the new. One can also comprehend, on the other hand, that the Secretary-Treasurers of School Municipalities have not all specially qualified themselves to judge concerning methods of teaching and the comparative merits of School text-books. The result has been, that comparatively few scholars have profited by the introduction of improved works.

"Another result has been to cause confusion in respect of text-books, and to expose you to considerable expense whenever new teachers reject the manuals, used by their predecessors.

"The creation of a dépôt in the Department will put an end to those inconveniences. The law, as it now stands, is to the following effect: Every year, in the course of July and August (clause 30) you are required to transmit to the Superintendent a requisition for the text-books, &c., needed for each of your schools; these will be despatched to you without delay; the furnishings required will all be of the best make and the most inexpensive that can be procured; the books will be the best of those sanctioned by the Council of Public Instruction, and will be sold to you at cost price, with the addition of the charges for storage, transport, &c.; regard should be had to the expenditure at the times when you lay the School rates, but should you not thus make provision for it by means of the rates, then the reimbursement of the cost must be procured by the distribution of the books and other articles required by the scholars, to whom, however, they must be supplied at prices not exceeding what you have paid for them.

"All matters relative to this subject will be managed subject to regulations to be established by the Superintendent and to come into force when sanctioned by the Lieutenant-Governor in Council.

"It is evident that this system implies economy for the parents. First, there will be a saving in respect of commercial profits, and secondly, in avoiding the frequent changes of text-books; in future it will become possible to have uniformity in these. In short, we shall have the most approved text-books at the smallest possible cost.

"It has been suggested that the system is calculated to be hurtful to the interests of the booksellers. Not so. The new law will not make the Superintendent either a publisher or a book-maker.

"It will be open to the booksellers always to realize just profits by furnishing the Educational Dépôt. I know, however, very well, that the law will be a source of real benefit to the country at large. It has been called for in past years by my predecessors and by the Council of Public Instruction.

"I only regret that the Dépôt cannot be made complete at once; in fact, for that, a

couple of years' time will be necessary. Nevertheless, you should transmit your requisition next July and August, for then, it will be practicable to furnish a considerable number of articles, including some of the most approved of the text books sanctioned by the Council of Public Instruction, copy books, pencils, globes, wall maps, &c., and the account books, already referred to in the circular."

During a recent visit to the Education Department of Ontario, by the Hon. G. Ouimet, Superintendent of Public Instruction, and Dr. Girard, the Secretary, these gentlemen sought and obtained information on the work of the Ontario Education department, and discussed with the Minister the principles on which such Institutions should be conducted.

X.—LOCAL SCHOOL EXHIBITIONS OR MUSEUMS, PROVINCE OF QUEBEC.

In a recent circular from Hon. G. Ouimet, Superintendent of Public Instruction, to the School Officials of the Province of Quebec, he calls attention to this subject. He says:—

"Section 52 of the recent enactment authorizes the Government to establish School Exhibitions. The Universal Exhibitions have shown how the less advanced nations can benefit by a study of what is done in foreign Schools. At the grand international concourse held at Philadelphia, the chief prominence as to the classification and the grouping of objects, was accorded to the Educational Department.

"I cite from my last report, on this subject: 'This innovation has brought out afresh one of the chief traits of the physiognomy of the contemporaneous world; instruction has become a popular force, a common instrument, a generating power with respect to every human work. In effect, if the art of printing has changed the face of society in placing the means of reading within the reach of the multitude, steam and electricity have completed this revolution in converting the ideas of a single person into the property of all, diffusing almost instantaneously over the whole world, the light emanating from an isolated spot. The members of the vast human family are no longer strangers to each other; they continually interchange thought, and compare progress in civilization; there is less room left for antagonism but more for emulation. Each one seeks to know how others attained to wealth or reputation, and desires, after admiring their works, to realize the same for himself. It is soon recognized that the foundation is instructed intelligence. That is the source of the perpetual loan which nations make to each other from their methods of instruction. As soon as one becomes convinced that the diffusion of the benefits of instruction is the surest mode of arousing the talents of all, and preventing the loss or extinction of latent intelligence through the absence of suitable nourishment, the natural consequence is to inquire into the most advantageous methods of intellectual culture. Then it also happens, that whenever there is a concourse of the nations in a general exhibition, we recognize the existence of a veritable relationship of mental intelligence, a certain community of methods of thought and of execution, and if we go to the source of their works, that is to say, to the School, we ascertain that each one of the nations has its system of instruction adapted to the conditions of climate, natural productions, language, religion and public life, but that all the systems present resemblances and suggest methods and processes which are the common inheritance of all nations.'

"In short, International Educational Expositions have been advantageous to nations in the same way that local Agricultural Exhibitions have proved beneficial to individuals, and Provincial Shows to counties.

"In the present instance, the object of the law is to apply to the domain of Public Instruction a practice which has contributed so much to the advancement of agriculture; if, in our Province, agriculture has thus profited, so would our schools, for, by this means, every advance made in one part would become promptly known everywhere, and would soon become general.

"This year, it is hoped that we may have an Educational Exhibition in connection with the ensuing Provincial Show. I am desirous of securing your co-operation and participation. What will be requisite for this purpose?

"Simply cause the performances of your scholars, as already explained in this circular, to be preserved in your schools; to have taken photographic views of your school-houses, of a size of about ten inches by twelve, if there be anything remarkable in respect of situation or proportions; to send samples of your equipments for classes, seats, desks, maps, &c. Your Secretary-Treasurers might study, to your great advantage, such a collection, which would offer to their view much that would be worthy of their notice."

XI.—PROPOSED IMPERIAL MUSEUM FOR INDIA AND THE COLONIES.

From the London Times, 6th June, 1876.

"Dr. Forbes Watson, the Director of the India Museum, has for some years past lost no opportunity of advocating the establishment of industrial museums of a complete character, as the most ready means of diffusing abroad a general knowledge of the products of our various dependencies and of foreign countries. He has lately matured a project for bringing together, in a museum or federation of museums, under a single roof, the products of India and of the colonies; and he has succeeded in discovering a site which seems to be in every way suitable for the proposed building. It would afford sufficient space, not only for the proposed several museums, but also for the accommodation of the various colonial agencies which are now scattered about London, so that the convenience of all who are interested in colonial affairs would be greatly considered and promoted. . .

"A museum such as that which Dr. Forbes Watson contemplates, and which would faithfully represent all the productions of the colonies, could not fail in many ways to facilitate and promote their commercial intercourse with the mother country. Their own power of purchasing English productions is dependent, of course, upon their being able to dispose of their own goods in equivalent quantities, and it is impossible to doubt that among their actual or possible products there must be many which are either unknown or only imperfectly known in this country, and which might be rendered available for many purposes in manufactures and in the arts. Nothing can be conceived more valuable, for example, to a manufacturer who is seeking a new raw material for paper than a museum in which he would find ready to his hand all the fibre-producing plants of every colony, together with authentic information about their general characters, modes of growth, and fitness for systematic cultivation. Both in India and in the colonies there is now a great display of activity in seeking to find new articles of export; and Dr. Forbes Watson refers to the coffee and tea trade of India, the rapidly increasing exports of india-rubber and tobacco from the same country, the wines of the Cape and of South Australia, and the attempted cultivation of tobacco and silk in Australia, as examples which are in point, and which are sufficient to mark the direction in which the commerce between England and the colonies is likely to increase. It is in this very direction that a museum could render the greatest assistance.

"Some of the colonies have already voted money for the establishment of a museum in London. A collection of the products of Queensland has for some time been exhibited at South Kensington, and has been sent to Philadelphia, where all the other colonies are well represented. If, at the close of the Centennial Exhibition, some arrangements were made for retaining all these collections in London, they would supply at once a nucleus for a complete Colonial Museum, which, no doubt, would be speedily enriched by many special collections.

"The erection of a Colonial Museum would give an opportunity for the concentration of the offices of the various colonial agents, and such a concentration, besides its other advantages, would be a very economical arrangement. . . . To the colonial agents the existence of an adjacent museum and library containing full information on their respective colonies, would be invaluable in their dealings with commercial men or with intending emigrants. In many instances where now long explanations would be necessary, they would simply have to send the inquirers into the museum; and the museum itself would benefit by such an arrangement. Each colonial section would obtain the general supervision of the representative of the colony, and the collections and the library, being frequently referred to on actual business, would necessarily be kept up to

the level of the latest information, and would be constantly rendered more and more suitable for practical purposes. In Dr. Forbes Watson's own words, the combined India and Colonial Museums, established according to the above plan, would in every way become a living institution worthily representing the past history and the present resources of the British empire throughout the world. Such an institution would not only afford exhaustive materials for study and research, but would likewise be suitable for reference by the Indian and colonial authorities, by men of business or of letters, and by officials or emigrants intending to proceed to India or the colonies.

From the London Athenæum, 24th June, 1876.

"The Centennial Exhibition at Philadelphia was organized to celebrate the marvelous progress achieved by the United States during the century which has elapsed since the declaration of independence in 1776. It would be a worthy counterpart of the festivities on the other side of the Atlantic if we were to commemorate the no less extraordinary growth of the English Colonial Empire by the establishment in London of a great museum for the colonies and India.

"With the secession of the twelve American provinces, and the two and a half millions of colonists which they contained, it seemed as if the colonial power of England had been for ever broken. The only English colonies of importance were the three islands of Barbadoes, Jamaica and Newfoundland. What was left of English possessions on the continent of America, was poor and thinly inhabited—Nova Scotia and Canada, the insignificant province of Canada, as it was then called, with about 100,000 inhabitants, mostly French. The Cape, Ceylon and Guinea still belonged to the Dutch. The very name of Australia does not occur in Adam Smith's review of the English colonies, as contained in his great work published just about that time. It is exactly 100 years ago that Captain Cook sailed on his third ill-fated voyage of discovery, and it was not till many years afterwards that the first convicts were shipped for New South Wales. The whole population of the colonies, including slaves and aborigines, will have at most amounted to 500,000, of which probably not much more than 50,000 were Englishmen.

"In India, at least, although the Mahrattas were still the masters of the greater part of the country, and although Hyder Ali was then preparing, with a fair chance of success, his final effort for the conquest of Madras, the foundation of the English power had already been firmly laid by Clive, and was about to be finally consolidated by Warren Hastings. The territorial possessions of the East India Company, however, were as yet restricted to Bengal, then recently devastated by a frightful famine, and to a few small districts on the coast; and it was only two years later, in 1778, that the famous march of Colonel Goddard across the whole peninsula, from Bengal to Bombay, first foreshadowed the possibility of the English appearing one day as the power paramount over the whole continent of India. The utmost number at which the population of the territories possessed by the East India Company in 1776 could be estimated, would be about 25,000,000.

"Compare now the progress accomplished within one century. In India, the undisputed establishment of the English power over the whole country, and the organization of the most wonderful political dominion since the days of the Romans, with a population increased from 25,000,000 to 240,000,000. The population of the colonies proper now amounts to above 12,000,000 instead of the 500,000 a hundred years ago, the inhabitants of European descent to 6,250,000 instead of 150,000, whilst the colonists of English blood and origin have increased a hundredfold from 50,000 to 5,000,000.

"The indirect effects of this unexampled growth of our colonial empire on our commerce and manufactures, and on the condition of our population, have long made themselves felt in every town and village of England, but it is only of late that we have begun fully to realize the political significance of the fact, and the new responsibilities and duties which it entails.

TABLE SHOWING THE POPULATION AND TRADE OF THE COLONIES, 1874.
(EXCLUSIVE OF THE EAST INDIES.)

NAME.	Total Population.	English or European population, exclusive of naval and military establishments.	Total trade exports and imports.	Trade with England (exports and imports).	REMARKS.	
I.—TRADING STATIONS.						
Hong Kong	124,198	2,979	Not known.	£ 4,657,000	{ 3½ million tons entered the port in 1874. 1,853,000 tons entered the port of Singapore in 1874. The English trade not separately recorded.	
Straits Settlements	307,951	1,350	26,635,000	5,413,000		
Labuan	4,898	43	189,000			
Gold Coast	400,000	70	556,000	} 1,531,000	{ The second column contains only the number of the English population.	
Lagos	28,963	94	835,000			
Sierra Leone and Gambia	53,126	311	1,267,000			
Aden	22,507	117	2,620,000	538,000		
Malta	145,599	850	16,205,000	1,283,000		
Gibraltar	25,216	1,800	Not known.	1,316,000		
Total	1,112,458	7,596	Not known.	£14,738,000		
II.—PLANTATION COLONIES.						
The Bahamas	39,162	6,500	314,000	} 9,782,000		
Antigua	35,157	2,146	343,000			
Montserrat	8,693	240	57,000			
St. Christopher	28,169	1,500	275,000			
Nevis	11,735	600	135,000			
Anguilla	2,732	100	....			
Virgin Islands	6,426	500	....			
Dominica	27,178	800	125,000			
Bardadoes	162,042	16,560	2,190,000			
St. Vincent	35,688	2,344	362,000			
Grenada	37,684	1,000	266,000			
Tobago	17,054	250	91,000			
St. Lucia	31,610	900	273,000			
Turk's and Caicos Islands	4,723	500	45,000			
Trinidad	109,638	5,000	2,754,000			
Jamaica	506,154	13,000	3,205,000			
British Guiana	212,000	15,000	4,635,000			
British Honduras	24,710	377	419,000	257,000		
Mauritius	331,371	15,000	5,135,000	1,659,000		
Ceylon	2,401,066	18,700	10,379,000	4,840,000		
Total	4,632,993	101,017	£31,003,000	£16,538,000		
III.—AGRICULTURAL, PASTORAL, AND MINING COLONIES.						
Africa:—						
Cape and Kaffraria	776,158	200,000	} 9,792,000	} 8,999,000		
Griqualand West	50,000	15,000				
Natal	317,000	20,000	1,892,000			
Total	1,143,158	235,000	11,684,000	8,999,000		
Australasia:—						
Victoria	808,000	808,000	32,395,000	} 39,217,000	See page 194 of this Report.	
New South Wales	584,000	584,000	23,640,000			
Queensland	164,000	159,000	7,068,000			
South Australia	205,000	205,000	8,385,000			
West Australia	26,000	26,000	793,000			
Tasmania	104,000	104,000	2,183,000			
New Zealand	345,000	294,000	13,373,000			
Total	2,236,000	2,180,000	87,837,000	39,217,000		
NORTH AMERICAN COLONIES:						
Dominion of Canada } and Newfoundland }	3,747,000	3,747,000	48,533,000	22,070,000		
Total Colonies	12,271,609	6,270,613	Not known.	101,562,000		

"The table shows that the English Colonies proper, *i.e.*, exclusive of India, contain above 12 millions of inhabitants, of which above 6½ millions are English or European. Of this last number about 5 millions are purely English, whilst the remainder consist mainly of French settled in Canada, the West Indies, the Mauritius, as also of the Dutch in Guiana, the Cape, and Ceylon. The difference between the different classes of Colonies will appear particularly striking if their trade be compared with the number of the English or European population existing in them. This is a true standard, because almost the whole trade of the Trading Stations and of the Plantation Colonies is due to the agency of the Europeans; and only in the West Indies a small fraction of the mixed races can be counted as approximating in any way to them in respect of industrial and commercial activity. The results of such a comparison are shown in the following summary, in which only round numbers have been used:—

	European Population.	Total Trade. £	Trade with England, £	Per White Inhabitant in Colony. Total Trade, £	Trade with England, £
TRADING STATIONS.....	7,600	{ Probably not less than 75 millions .. }	{ 14½ millions .. }	{ Probably £10,000. }	{ About £2,000 }
PLANTATION COLONIES....	100,000..	31 millions ..	16½ millions ..	£310 ..	£165
AGRICULTURAL, PASTURAL, AND MINING COLONIES					
Cape and Natal	235,000..	11½ millions ..	9 millions ..	£49 ..	£38
Australasia	2,180,000..	88 millions ..	39 millions ..	£42 ..	£18
North American Colo- nies	3,750,000..	48½ millions ..	22 millions ..	£13 ..	£6

APPENDIX C.

INTERNATIONAL EXCHANGE OF SCHOOL MATERIAL.

During my stay at Philadelphia and that of the other representatives of the Department, several applications were made for the purchase or exchange of selections from our School Material for those of other School Exhibits. After conversing on the subject with Hon. General Eaton, the United States Commissioner of Education, he addressed me the following letter on the subject:

NO. 1.—LETTER FROM THE UNITED STATES COMMISSIONER OF EDUCATION, TO THE DEPUTY MINISTER OF EDUCATION FOR ONTARIO, DATED DEPARTMENT OF THE INTERIOR, BUREAU OF EDUCATION, WASHINGTON, D. C., JULY 20TH, 1876.

In organizing at the capital of the nation a museum exhibiting the appliances and progress of education, it would give me great gratification to include a full representation of these articles from your country.

We desire that in this representation the museum should present as complete an idea of education throughout the world as possible.

It would be especially gratifying if your Government or the exhibitors representing it at Philadelphia, could furnish to this office their interesting educational collection so far as it is to remain in this country.

Hoping that this proposition may be agreeable to you, and receive your favourable consideration.

To this letter I replied to the effect that I would recommend it to the favourable consideration of the Honourable the Minister of Education, which I did on my return to Toronto. Having done so, the following:

No. 2.—LETTER FROM THE SECRETARY OF THE EDUCATION DEPARTMENT WAS SENT TO GENERAL EATON, DATED EDUCATION OFFICE, TORONTO, 28TH AUGUST, 1876.

I am directed by the Honourable the Minister of Education to thank you for your communication of the 20th July, and to state that the important subject of it will be submitted for the consideration and action of the Lieutenant-Governor in Council, with the recommendation of the Minister that he be authorized to make such arrangements, by exchange or otherwise as may enable the Education Department of Ontario to be adequately represented in your proposed Museum at Washington.

No. 3.—LETTER FROM THE DEPUTY MINISTER OF EDUCATION TO THE UNITED STATES COMMISSIONER OF EDUCATION, DATED EDUCATION OFFICE, TORONTO, 11TH OCTOBER, 1876.

I have the honour to state, that Dr. May has reported that he had seen you in regard to exchanging articles under your direction for some of those in our Educational Exhibit in Philadelphia.

As already intimated to you, the Honourable the Minister of Education is desirous of doing so. It has occurred to me that probably you could easily arrange with the Smithsonian Institution to give us on your behalf for such articles in our Exhibit as you might select, duplicates of some of the Natural History and other specimens on exhibition in the United States Government building. Duplicates also of the models of the caves and cliff ruins of Colorado, &c., from the Geological survey, &c., as well as Indian curiosities, might through your intervention be exchanged for some of our things.

I hope to be at our Department in Philadelphia early next week, when I should like to call on you in regard to this matter. In the meantime, you might give it your consideration.

The Department thanks you very heartily for your cordial reception of our Public School Teachers while on their late visit to Philadelphia, and for your kind attention to them.

Being in Philadelphia shortly afterwards, I addressed the following to General Eaton:—

No. 4.—LETTER FROM THE DEPUTY MINISTER OF EDUCATION FOR ONTARIO, TO THE UNITED STATES COMMISSIONER OF EDUCATION, DATED PHILADELPHIA, PA., 26TH OCTOBER, 1876.

In connection with the subject of exchanges of school material and appliances for the proposed Pedagogical Museum at Washington, and our Educational Museum in connection with our Department at Toronto, a plan has suggested itself, which, with the concurrence of the Minister of Education for Ontario, I desire to submit for your consideration.

In the United States building of the International Exhibition, there are a number of things of special interest and value which it is likely can be duplicated, and which are well adapted to the purpose of our Museum. I refer especially to a typical collection of casts of fish, of photographs of fish, Indian curiosities and photographs, geological models and photographs of scenery, models of caves and cliff ruins, &c., in Colorado, as well as selections from the articles specially exhibited by your own Bureau, and the Agricultural Department, &c.

As the whole of these exhibits are, I believe, more or less under the control of the United States Government, it has occurred to me that such articles in our school exhibit here as might be desired for the United States Pedagogical Museum could be exchanged through you for such of the articles designated as could be conveniently duplicated.

Should this mode of exchange be practicable, I would thank you at an early day to make such a selection from our school exhibit as you think fit. I would then give direc-

tions to Dr. May to hand them over to you at the close of the Exhibition, leaving the details of the exchange to be arranged subsequently.

In the meantime, I shall prepare and send to you a detailed list of such things as I think would be suitable for our Museum, with the understanding that where duplicates cannot be supplied they be omitted from the list.

Most of those in charge of school exhibits for the various States in the Union have expressed a wish to effect changes with our Department. We should, however, prefer to have to do with your Bureau exclusively in this matter. These States might, however, obtain from us, through you, duplicates of any which the State Education Departments concerned might desire, especially as the selection made by you from our school exhibit would likely embrace every thing of practical value in it.

I expect to leave Philadelphia in a few days, and as I desire to give specific directions to Dr. May in the matter, in connection with arrangements for packing, &c., I will thank you for a reply to this letter at your earliest convenience.

No. 5.—TELEGRAM FROM THE UNITED STATES COMMISSIONER OF EDUCATION TO THE DEPUTY MINISTER OF EDUCATION FOR ONTARIO, DATED WASHINGTON, OCTOBER 29TH, 1876.

Shall be happy to see you here Wednesday and can reply then.

After meeting with General Eaton and discussing the whole question, he addressed to me the following reply to my letter on the subject of the exchanges.

No. 6.—LETTER FROM THE UNITED STATES COMMISSIONER OF EDUCATION TO THE DEPUTY MINISTER OF EDUCATION FOR ONTARIO, DATED DEPARTMENT OF THE INTERIOR, BUREAU OF EDUCATION, WASHINGTON, D. C., OCTOBER 31ST, 1876.

Your favour of October 26th, from Philadelphia, is duly received. I am very greatly obliged by the consideration given by yourself and the Honourable the Minister of Education for Ontario to the proposition to exchange school material and appliances.

There are articles in your exhibition at Philadelphia which will be of great value to our proposed National Pedagogical Museum. It would also give me pleasure to make this office the medium of exchange of articles between yourself and the several State Museums at Philadelphia, which will be of great value to our proposed National Pedagogical Museum. It would also give me pleasure to make this office the medium of exchange of articles between yourself and the several State Museums, of this character.

I have carefully considered and heartily approve the provisional plan you suggest for the beginning of the exchanges. I shall be happy to receive the list of articles you mention as being in your exhibit which you are willing to exchange; and shall also be happy to receive the memoranda of the articles in the Government Building which you consider especially desirable for your Museum, and shall take great satisfaction in procuring duplicates as far as in my power for transmission to Ontario.

No. 7.—LIST OF SCHOOL MATERIAL FROM THE ONTARIO EDUCATIONAL EXHIBIT, SENT FROM PHILADELPHIA, 24TH NOVEMBER, 1876, TO THE EDUCATIONAL MUSEUM AT WASHINGTON, UNITED STATES.

1 Reynolds' Laws of matter and motion (small.)	1 Reynolds' Principles of Hydraulics (small)
1 " Principles of Pneumatics "	1 " " Magnetism "
1 " " Electricity "	1 " Mechanical Powers
1 " " Hydrostatics "	1 " Section of Earth's Crust
1 " " Optics "	1 " Geometrical Chart

1 Reynolds' Illustrations of Hydraulics (4 diagrams)	1 Township School Debenture
1 " Property of matter "	6 Marshall's Physiological Charts
1 " Hydrostatics "	1 Chart of Measures and Weights of Metric System
1 " Mechanical Powers "	13 Geographical Lessons
1 Johnston's Map of Graecia Antiqua	1 Lord's Prayer
1 " " Italia "	1 Honour Roll
1 " " Orbis Veteribus Notus	1 Reynolds' Vertebra, etc., (4 diagrams)
1 Raised Map of Ancient Italy	1 Set Groves Battery
1 " " Graecia Antiqua	1 " Daniels "
1 " " Modern Italy	1 Electrical Machine
1 Departmental Map of Dominion	1 Red Brick School House (model)
1 " " United States	1 Air Pump
1 " " British Isles	1 Bell Glass
1 " " Palestine	1 Planetarium
1 " " Europe	12 Drawing copies in 4 frames
1 " " Asia	1 Weight of air apparatus
1 " " Africa	1 Under and overshot wheel
1 " " America	1 Set Mechanical Powers
1 Chart Barometer and its uses	1 " Collision Balls
1 " Volcanic system of Globe	1 Pair Hemisphere Cups
1 Chart Movements of Waters	1 Standard Barometer
1 " Physical Features of Land	1 Maximum Thermometer
1 " Distribution of Rain	1 Minimum "
1 " " Winds	1 Hemisphere Globe
1 " " Climates	1 Six Inch "
1 " Union Jack	1 Pair Twelve Inch Globes (High Schools)
1 Chambers Geometrical Chart	1 Set Metals in Glass Shade
1 Smith's Astronomy	1 Small Numeral Frame
1 Gall and Inglis' Chart of Bible History	4 Drawing Models (Fruit, etc.)
1 Taylor's Sovereigns of England	1 Photograph Normal School Ottawa (in handsome frame)
1 Morrison's Skeleton of Ancient History	1 Education Department Photograph. Toronto (in handsome frame)
1 Departmental Eastern Hemisphere	1 Ten Commandments
1 " " Western "	1 Slate Blackboard
1 School Law Arbitration	1 Reynolds Laws of Matter and Motion, small.
1 Public School Meetings	
1 Duties of Pupils	
1 Limit Table	

Value of this collection of School Material, \$908.25. Net to be sent, \$1,108.

8.—LIST OF ARTICLES ASKED FOR FROM THE UNITED STATES COMMISSIONER OF EDUCATION.

Set of models of cave ruins, cave town and ancient tower in Arizona, etc.

Selections from transparencies of cave ruins, Geysers, and ancient villages of Arizona.

Coloured model of Niagara Gorge, of the Yosemite Valley and Grand Canon of Colorado.

Selections from large photographs of Indians.—U. S. Geological Survey of Rocky Mountains.

Specimens of Indian costumes, adornments, masks, and utensils.—National Museum.

Selections of photographs of schools, institutions, and educational appliances for Indian Schools.

Two or three of the very large maps of the United States.

Selections from the casts of food fishes, complete set of photographs of food fishes, &c.

School cabinet of forest trees with examples.

II.—EXCHANGE OF SCHOOL MATERIAL BETWEEN THE JAPANESE AND ONTARIO EDUCATION DEPARTMENTS.

During my stay in Philadelphia in July, I had several conferences with the Japanese Commissioners, chiefly in regard to an exchange of school material, between the Japanese and Ontario Education Departments. The result was most satisfactory. In the following month after my return to Toronto, the Honourable the Vice-Minister of Education, Hon. Fugimaro Tanaka, addressed me the following letter :—

No. 1.—DATED 1621 CHESTNUT STREET, PHILADELPHIA, 12TH AUGUST, 1876.

"Hereby I wish to present you those books and charts which are used in our primary schools in Japan, and also the books named Riji-kotei, which have been composed of the translations of what we could investigate in Europe and America on the subject of Education, when we came for the purpose four years ago, so I shall be very happy if you accept them."

This letter was suitably acknowledged. Subsequently the following letter was received, dated 1621 Chestnut Street, Philadelphia, August 19th, 1876 :—

"No 2. We intend to come to Canada in the early part of next month, and it is our desire to visit the Schools there, when I hope we shall have the pleasure of seeing you there.

"We expect to leave here on the 25th instant for Toronto, *via* Niagara Falls, &c.

"In the meantime accept my best regards."

No. 3. The following Telegram in reply was sent to the foregoing, dated Toronto 24th August :—

"I shall be happy to see you and party on your visit to Canada."

The Vice-Minister, Madam Tanaka, and suite, having visited Toronto, were shown most of its educational institutions.

No. 4.—THE VICE MINISTER OF EDUCATION, JAPAN, TO THE DEPUTY MINISTER OF EDUCATION, DATED QUEEN'S HOTEL, TORONTO, SEPTEMBER, 1876 :—

"I wish to express you my warm thanks for the two packages of the reports, journals, and other educational documents, which I received just now, and which are most valuable things to me, so that I can get important information from them. I am very much obliged to you not only for your kindness in showing us your schools and other places, but also for the trouble which you have taken in collecting for me so many reports and notes."

No. 5.—THE FOLLOWING ARTICLES WERE SUBSEQUENTLY ORDERED FROM THE VICE-MINISTER OF EDUCATION FOR JAPAN FOR THE EDUCATION DEPARTMENT, ONTARIO :

- | | |
|---|--|
| 1 Picture of old Japanese school-house. | 5 Pictures painted in lacquer in frames. |
| 10 Pictures of the interior of old and new school-houses. | Several photographic pictures of colleges and schools, maps of school districts. |
| 7 Pictures in frames, made out of silk cloth. | 12 Painted pictures of plants. |

- | | |
|--|--|
| <p>1 Set of Abacus.
Some specimens of copper and zinc types.
Some specimens of Japanese shell fish.
Some specimens of " fish.
1 Set of scales, weights and measures.
1 Specimen of Japanese old clock.
1 Specimen of certificate paper.
Some specimens of pupils' work.
1 Set of printed pictures for children.
1 Compass.
Some specimens of stationery.</p> | <p>Some materials of Kindergarten.
1 Box of solids.
1 Model of steam engine.
1 Gyroscope.
1 Glass cutting machine.
2 Globes.
Some specimens of newspaper.
Some specimens of slates.
Some maps of sea ports of Japan.
1 Model of school-house.
Some pictures of Japanese social life or daily living.</p> |
|--|--|

No. 6.—THE JAPANESE COMMISSIONERS PRESENTED A PAIR OF BRONZE VASES TO THE MUSEUM OF THE EDUCATION DEPARTMENT, ONTARIO.

And M. Rikio Ideura subsequently addressed the following letter to Dr. May, dated Philadelphia, Pa., 30th Nov., 1876 :—

"I wish to write you that we are very much obliged to you, not only for the kindness, but also for the great trouble which you have taken in delivering those educational materials which we selected from your educational exhibits; and I wish you to make communications hereafter.

"I desire to inform you that, the price of the pair of bronze flower vases for your Museum is four hundred and eight dollars in American currency.

"Please present our best regards to Dr. Hodgins, to whom we feel much obliged.

"We leave here for Japan to-morrow morning. Our address in Japan is Tokio."

No 7.—LIST OF ARTICLES FOR THE EDUCATION DEPARTMENT, JAPAN, FROM THE EDUCATION DEPARTMENT, ONTARIO.

- | | |
|---|---|
| <p>12 Prints of Scripture sites (large).
30 " " (small).
30 " " manners and customs.
6 Reynolds' Chemical Charts.
7 Johnston's Natural Philosophy Charts.
3 " Astronomy Charts.
4 " Botany Charts.
1 Brown's Geometrical Chart.
10 Coloured lithographed zones of the earth.
1 map stand; 1 electric telegraph.
1 Departmental maps of Europe, Asia, Africa, and America.
1 Original model of school house building, in 2 sections.
11 photographs of school buildings in Ontario, as follows: 1. Public School, Brantford; 2, Ward Public School, Toronto; 3, High School, Mitchell; 4, Collegiate Institute, Hamilton; 5, Normal and Model School, Toronto; 6, Education Department, Toronto; 7, Reformatory for Boys, Penetanguishene; 8, Deaf and Dumb Institute, Belleville; 9, Blind Asylum, Brantford; 10, Brookhurst Ladies' Academy, Cobourg; 11, University of Toronto.</p> | <p>1 Elementary set chemicals; 1 teacher's laboratory.
1 Boy's Own Chemical Wonders; 1 Student's ditto.
1 set each of chemicals (Roscoe), blocks, animals, fishes, anatomical models.
122 vols. of books, as follows:
Rouge's Guide to English Kindergarten.
Calkin's Object Lessons.
Wilson's Manual of Object Lessons.
Welch's Object Lessons.
Lilienthal's Things Taught.
Barnard's Object Teaching.
Gray's Topics for Teachers.
Griffith's Hand-book for the Preparation of Lessons.
Park's Manual of Object Lessons.
Ross's How to Train Young Eyes and Ears.
Walker's Hand-book of Object-Lessons.
Pestalozzian Lessons on Objects.
Gill's Notes on Lessons.
Lake's Book of Object Lessons.
Wood's Object Lessons on Botany
Barnard's Oral Training.
Cooley's Easy Experiments.
Champlin's Political Economy.</p> |
|---|---|

Burton's Observing Faculties.
 Herve's Christian Rhetoric.
 Spencer's Essays on Education.
 Rodwell's Dictionary of Science.
 Potter and Emerson's School and School Masters.

Northend's Teachers' Assistant.
 Page's Theory and Practice of Teaching.
 Wickersham's Methods of Instruction.
 Wickersham's School Library.
 Sullivan's Popular Education.
 Forrester's Teachers' Text Book.
 Holbrook's Normal Schools.
 Sypher's Art of Teaching School.
 Well's Graded School.
 Root's School Amusements.
 Beecher's Physiology.
 Beecher's Letters on Health.
 Watson's Manual of Calisthenics.
 De Laspe's Calisthenics.
 Wood's Physical Exercises.
 Spenser's Modern Gymnast.
 Blackwell's Laws of Life.
 Parson's Calisthenic Songs.
 Roth's Physical Development of Children.
 Schoolmaster's Drill Assistant.

Hunt's Manual of Elementary Drill.

" Lessons in Drill for Girls.

Hugh Miller's School and Schoolmasters.
 Roger Ascham's Schoolmaster Education.
 Lyon's Power of Christian Benevolence.
 Mary Lyon's Teacher's Last Lesson.
 Hope's Book about Dominies.
 Dickens' School and Schoolmasters.
 Filleard's Life and System of Pestalozzi.
 Fraser's Memoir of David Stowe.
 Barnard's American Contribution to Pedagogy.

Olin's College Life.

Porter's American Colleges.

Thompson's English School-room.

Staunton's Great Schools of England.

Edinburgh Sessional School.

Barnard's National Education of Europe,

Wilkins' Natural Education in Greece.

Northrop's Education Abroad.

Mansfield's American Education.

Randall's History of Common School Systems.

Barnard's Military Schools.

" Letters, on —.

" Aphorisms on Education.

" American Teachers.

Received the above for the Education Department of Japan.

Cox's Recollections of Oxford.
 Mill's Industrial and Technical Education.
 Johnston's School-houses.
 Barnard's School Architecture.
 Hodgins' School-house and its Architecture.
 Leed's Treatise on Ventilation.
 Eassie's Healthy Houses.
 Putler's Ventilation.
 McCrie's Autopedia.
 Self Improvement.
 Garvey's Manual of Human Culture.
 The Gentle Life, 2 vols.
 About in the World.
 Stowe's Little Foxes.
 Herve's Principles of Courtesy.
 Bazaar, a book of Decorum.
 Manners of Modern Society.
 Meeting in Society.
 Foster's Improvement of Time.
 Todd's Complete Works.
 Beecher's Lectures to Young Men.
 Landel's Young Men in Battle Field of Life.
 Landel's Beacons for Young Men.
 Binney's "Is it possible to make best of both Worlds?"

Christian Training for Parents and Teachers,

Geikie's Life, or book for Young Men.

Guest's Young Men Setting out in Life.

Stevenson's Praying and Working.

Cobbet's Advice to Young Men.

James' Young Man's Friend.

Smith's Government of the Heart.

Prince Albert's Golden Precepts.

Guide of Wisdom and Virtue.

Foster's Essays on Decision of Character.

Sherwood's Self-culture in Reading, &c.

Stone's Complete Examiner.

Mavor's Young Man's Companion.

Ryerson's Christian Morals.

Nott's Counsels to Young Men.

Blackie's Self-Culture.

Tyler's Sweet Counsels to Young Girls.

Sigourney's Letters to Young Ladies.

James' Young Woman's Friend.

Ellis's Education of the Heart.

Orton's Liberal Education of Women.

Beecher's Domestic Economy.

Phelps Discipline of Life.

Governess Life.

Amica's Calling, &c., of a Governess.

Beecher's House-Keeper.

Hemar's Young Woman's Companion.

Flower Object Lessons.

(Signed)

RIKIO IDEURA,
Japanese Commissioner.

Value of the foregoing school material..... 8874 75

NO. 8.—LIST OF ARTICLES ORDERED FROM THE EDUCATION DEPARTMENT OF ONTARIO BY THAT OF JAPAN IN ADDITION TO THE FOREGOING.

Photograph of University of Toronto.	Chemistry of Geology, &c.
Model of Gymnasium.	Alphabet of Animals.
Map Stand.	The Birds on coloured blocks.
Blackboard Dividers.	The Fishes on ditto.
Allegorical Bust of Europe, Asia, Africa and America.	Small busts of Homer, Demosthenes, Aristotle, Cicero, and Galen.
Photograph of the Original Magna Charta.	Set of Models of crystals in glass.
All models of flowers from 214 to 242 inclusive.	Reprint of Wait's Point Primer for the blind.
Set of Botanical Plates.	Dissected Map of the United States.
Patterson's Zoological Diagrams.	All object Lesson Cards.
Set of 24 Plates of Scripture Natural History.	Johnstone's illustration of Natural History.
The Zones of the Earth.	View of nature on ascending mountains.
Set of Oliver and Boyd's Object Lesson Cards.	Anatomical Model.
Cabinet of Vegetable Kingdom.	Set of Anatomical Models.
Chemical Chart.	Model of Human Eye.
	Chemical Laboratory.
	363 to 367 inclusive.

(Signed) RIKIO IDEURA,

Commissioner from the Education Department of Japan.

NOTE.—The told value of the articles supplied to the Education Department of Japan was as follows:—

Already supplied	\$874 75
To be supplied	892 75
Total value	\$1,767 50

(Signed) F. TANAKA, *Vice-Minister of Education.*

NO. 9.—LETTER FROM THE JAPANESE VICE-MINISTER OF EDUCATION TO DR. HODGINS.

Since the return to Japan of the Vice-Minister of Education and his suite, he has addressed a letter to the Ontario Education Department, dated Tokio, 26th February, 1877, from which I make the following extracts:—

"We arrived safely here on the 8th ultimo. . . . I am exceedingly obliged to you, not only for your kindness which you had evinced towards us during our stay in Philadelphia, but also for your great kindness in showing us your own Department, and many other educational institutions in Toronto during our short trip to Canada, where I enjoyed the visit so much and got so much information about education in your country. I hope you will accept my warm thanks.

"I have the pleasure to inform you now, on my return to Japan, I shall be able to collect the school material which I promised to send to you from here."

(Signed) FUJIMARO TANAKA, *Vice-Minister of Education.*

NO. 9.—LIST OF ARTICLES SUPPLIED TO THE NATIONAL MUSEUM OF JAPAN, TOKIO, ON THE 13TH OF NOVEMBER, 1876.

4 Zoological Charts.	Henslow's Botanical Diagrams.
1 Macallum's Chart Natural History.	Set of Christian Knowledge Society—Natural History.
24 Pictures of Elementary Instruction.	View of Nature.
2 Sets Oliver and Boyd's Object Lessons.	Cabinet, illustrating Vegetable Kingdom.
20 Botanical Charts in ten frames.	Apparatus for Collecting Plants.
Patterson's Zoological Diagrams.	

III.—PURCHASE OF SCHOOL MATERIALS FOR ONTARIO FROM THE RUSSIAN COMMISSIONER, PHILADELPHIA, JULY, 1876.

A board with set of pegs for exercises in studying Arithmetic.	Models of a Bear, a common Beaver, Rhinoceros, Horse, Cossack Horse, Lion, Bat, Tiger, Jaguar, Elk, Goat, Cow, Aurochs, Seal, Dipus, Lamb, Ostrich,
Arithmetic box for same purpose.	Busts of Apes, Kapan, or Semnopithecus nasicus.
Class abacus for integers and fractions.	Pithecius troglodytes, Satyrs, Gorilla.
A board exhibiting square foot divided into square inches.	Busts of human races (11 in number).
A cubic $\frac{1}{2}$ arshin divided into cubic vershocks.	A collective model of races of men.
A geometrical cube.	Sretchnikoff's Anographical map of Russia.
School desk, made by the idea of the Committee of the Pedagogic Museum.	

Payment received.

Value \$192 80.

(Signed), JOHN CHARLES HEARD,
Commissary of the Russian Ministry of War.

NOTE.—A number of other educational articles were ordered, but they are to be sent direct from St. Petersburg.

IV.—ARTICLES SENT TO AUSTRALIA.

1.—LIST OF SCHOOL MATERIAL PURCHASED BY THE COMMISSIONER FROM VICTORIA, AND SENT TO MELBOURNE 1st DEC. 1876.

Teacher's Laboratory.	Set Oliver & Boyd's Object Lessons (vegetable).
Elementary " "	" Zones of Earth.
Student's " "	" Four Zoology (departmental).
Boy's Own " "	Reynolds' High Pressure Steam Engine.
Box of Chemical Wonders.	" Flour Mill.
Set of three Anatomical Models.	" Manufacture of Coal Gas.
Cabinet of Objects.	" Thrashing Machine.
Set Manners and Customs sheets (colored).	" Electric Telegraph.
" 210 Natural History " "	" Paper-making and Printing Machines.
" 30 Scripture Sites " "	" Barometer.
" Tablet Reading Lessons.	" Gasometer.
" Geographical Sheets.	" Manufacture of Cast Iron.
Reynolds' View of Nature, all climates (mounted).	" Marine Engine and Oscillating M. Engine.
Departmental Map of the Dominion.	" Stream of Time.
" " Europe.	" Geological Chart.
Canada series of map of Asia.	" Sovereigns.
Departmental Africa; Do. America; Do. United States.	" Botany and Book.
Set twenty Departmental Botany card-board.	" Zoology.
Departmental British Isles. Do. Palestine.	" Human Species.
Set Oliver & Boyd's Object Lessons (animal kingdom).	" Ascending Regions.
	" Botanical World.
	" Zoological "

Value of the foregoing school material, \$144 53c.

2.—LIST OF SCHOOL MATERIAL SOLD TO GOVERNMENT OF NEW SOUTH WALES, AUSTRALIA, AND SENT TO SYDNEY.

Departmental map of the Dominion.	Nine Certificate Cards (Five Single Merit Cards).
“ “ Europe.	Ten Merit Cards (Four Fifty do).
“ “ America.	Set seven Raised Maps (Hundred do).
Canada Series of map of Asia.	Public School Microscope. Compound do.
“ “ Africa.	Simple do.
Departmental map of the British Isles.	Seed Microscope. Twelve inch Globe Quadrant and Box.
“ “ Palestine.	Raised Map of Italy. Do. Ancient Italy.
“ “ United States.	“ Greece.
High School Entrance Examination Papers.	Set Departmental Botany.
Normal School Examination Papers.	Air Pump. Hemisphere Cups and Stand.
Provincial Examination Papers.	Two Bell Glasses.
General Register for Schools.	Seven Dissected Maps—World, North America, Europe, Asia, Scotland and United States.
Daily “ “	Weight of Air Apparatus.
High School Register.	Bladder Stand. Guinea and Feather Tube.
Limit Table of Studies.	
Time Table. Programme.	
Sample set of Reports.	
Public School Honor Roll.	
High School “	

Value of the foregoing school material, \$176 57c.

(See page 25 of this Report.)

SUMMARY OF ARTICLES SOLD OR EXCHANGED AT PHILADELPHIA.

To New South Wales	\$176 57
“ Melbourne, Victoria.....	144 53
“ Japan National History Museum.....	217 00
	\$538 10

EXCHANGED.

Educational Department, Japan.....	\$874 75
National Pedagogic Museum, Washington.....	908 25
	\$1,783 00

VALUE OF ARTICLES YET TO BE SENT.

To Japan.....	\$2000 00
To Washington.....	3783 00

LIST OF ARTICLES SOLD TO H. J. SHEFFIELD, ESQ., LIBRARIAN TO THE PUBLIC LIBRARY, MELBOURNE, AUSTRALIA.

Teachers' Laboratory,	Set, Tablet Reading Lessons,
Elementary “	“ Geographical Sheets,
Students “	Reynolds' View, Nature, all climates,
Boys Own “	Dept. Dominion, 1 Europe,
Box Chemical Wonders,	Canada, Asia,
Set 3 Anatomical Models,	Deptl. Africa 1 America,
Cabinet Objects,	1 United States,
Set Manners and Customs, sheets coloured.	Deptl. British Isles, \$3.50 ; 1 Palestine,
“ 210 Natural History, sheets coloured.	\$4.00.
“ 30 Scripture Sites, “	Set 20 Dept. Rotary Cardboard,

" O. & B. O. Lessons Animal Kingdom,	Reynolds' Marine Engine and Oscillating
" " Vegetables,	M. Engine,
" Zones of Earth,	" Stream of Time,
" 4 Zoology (Dept.) and books.	" Geological Chart,
Reynolds' High Pressure Steam Engine,	" Sovereigns,
" Flour Mill,	" Botany and Bk.
" Manufacture of Coal gas,	" Zoology,
" Thrashing Machine,	" Human Species,
" Electric Telegraph,	" Ascending Regions,
" Paper Making and Printing	" Botanical World,
Machine,	" Zoological, "
" Barometer,	Robertson's Chronology,
" Gas Meter,	Value of the foregoing, \$180.
" Manufacture of Cast Iron,	

APPENDIX D.

OFFICIAL CORRESPONDENCE IN REGARD TO THE INTERNATIONAL EXHIBITION.

No. 1.—FROM THE REV. THE CHIEF SUPERINTENDENT OF EDUCATION FOR ONTARIO, TO THE HONOURABLE THE PROVINCIAL TREASURER, DATED 3RD NOVEMBER, 1875.

I have the honour to state, that, since conversing with you on the expediency of this Department taking part in the proposed American Centennial Exhibition at Philadelphia next year, I have thought it desirable to make some practical suggestions on the subject. In doing so, I would also enclose for your information the copy of a pamphlet on the educational features of the proposed Exhibition, received from General the Honourable John Eaton, United States Commissioner of Education at Washington, containing suggestions from the Central Bureau of Education "respecting the educational exhibit at the International Centennial Exhibition, 1876."

1. I would first suggest that a suitable selection of the maps, globes, charts, apparatus, and other school illustrations and text-books manufactured in the Province, under the direction of this Department, be sent for the Exhibition at Philadelphia.

2. That the various Boards of School Trustees be requested to send to this Department two photographs each of a prescribed size, of their school buildings and fittings. A selection of those received to be made for the Exhibition, and a second copy received to be arranged for our own Museum.

3. That the Trustees be requested to send to the Department a selection of "pupils' work in drawing and penmanship," as specified in class 300 (page 13 of pamphlet.) From the samples sent, a choice selection could be made for the Exhibition.

4. That three models of approved primary and intermediate school-houses and out buildings be made, under the direction of the Department, for the Exhibition.

5. That large photographs of the Department and Normal Schools at Toronto and Ottawa be made.

The whole to be suitably mounted and prepared for the Exhibition.

I would also respectfully suggest that Dr. Hodgins, the Deputy-Superintendent, be appointed an Educational Commissioner to the Exhibition, on behalf of the Department, and that he be specially authorized to carry out the foregoing suggestions, if approved by the Government.

The favour of an early reply is requested, so as to enable me to communicate, by circular, with the School Trustees on the subject, without delay.

No. 2.—REPLY TO THE FOREGOING BY THE HONOURABLE THE TREASURER OF ONTARIO,
DATED 6TH NOVEMBER, 1875.

In reply to your letter of the 3rd inst., I beg to state that an appropriation will be asked from the House to cover the necessary expenditure in connection with a proper representation of the Education Department at the Philadelphia Exhibition. Your suggestions appear to be such as will secure that object. The Deputy Superintendent will receive the authority he desires for enabling him to carry out your suggestions.

No 3.—REPLY TO THE FOREGOING BY THE DEPUTY SUPERINTENDENT OF EDUCATION FOR
ONTARIO, DATED TORONTO, 11TH NOVEMBER, 1875.

I have the honour to state, in reply to your letter of the 6th inst., that the National Bureau of Education at Washington having been constituted the Central Agency in the United States for the Educational Department of the Centennial Exhibition at Philadelphia, I addressed a letter to General the Honourable John Eaton (who is head of the Bureau), asking him for copies of the pamphlet which was recently enclosed to you for distribution among our school Inspectors. I enclose a copy of General Eaton's reply, which will, no doubt, be gratifying to you.

In arranging the details of our proposed contribution to the Exhibition, which I think will be highly satisfactory to the Government, I find that we shall require space at least equal to a room of the size of 30 feet by 50. I will thank you, therefore, to inform me if that space can be secured for our purpose. A good deal will very properly be expected from this, the leading Province of the Dominion, in regard to its educational system and appliances, and we are anxious, as no doubt you are, that it shall not fall below that reasonable expectation. Less than the space indicated will not be sufficient for our purpose. I trust, therefore, that you will be able to secure it for us.

I find, upon calculation, that the sum mentioned in the Estimates submitted to you for this service, will be greatly below even the most moderate and economical expenditure which will have to be incurred in order to enable the Department to make a creditable appearance at the Exhibition.

4.—CIRCULAR FROM THE REVEREND THE CHIEF SUPERINTENDENT OF EDUCATION TO
BOARDS OF SCHOOL TRUSTEES AND INSPECTORS IN ONTARIO.

It having been deemed desirable and fitting that the Education Department, as well as the various Schools connected with it, should have an opportunity of taking part in the proposed Centennial Exhibition in Philadelphia next year, the Government have assented to a proposition which I made to the Hon. Adam Crooks, M.P.P., Provincial Treasurer, on the subject, as follows:—

"I have the honour to state, that, since conversing with you on the expediency of this Department taking part in the proposed American Centennial Exhibition at Philadelphia next year, I have thought it desirable to make some practical suggestions to you on the subject. In doing so, I would enclose for your information the copy of a pamphlet on the educational features of the proposed Exhibition, received from General the Honourable John Eaton, United States Commissioner of Education at Washington, containing suggestions from the National Board of Education 'respecting the Educational exhibit at the Inter-colonial Centennial Exhibition, 1876.' This Bureau, I may remark, has been designated by the Centennial Commission as 'the central agency' for carrying out the plans for the Educational Department of the Exhibition, and as the organ of communication on the subject.

"I would first suggest that a suitable selection of the maps, globes, charts, apparatus and other School appliances and illustrations, manufactured in this Province, under the direction of this Department, as well as the Text Books of the Schools, be sent for exhibition at Philadelphia.

"2. That the various Boards of School Trustees be requested to send to this Department two photographs each of a prescribed size, of their school buildings and fittings, &c.

"A selection of the photographs received could then be made for the Exhibition, and the duplicate copies received might be arranged for our own museum.

"3. That the Trustees be also requested to send to the Department a selection of 'pupils' work in drawing and penmanship,' as specified in Class 300 (page 13 of pamphlet.) From the samples sent a selection could be made for the Exhibition.

"4. That three models of approved primary and intermediate school-houses, out-buildings, and grounds, &c., be made under the direction of the Department, for the Exhibition.

"5. That large photographs of the Department, and of the Normal Schools at Toronto and Ottawa, be made.

"The whole to be suitably mounted and prepared for the Exhibition.

"1. I would also respectfully suggest that Dr. Hodgins, the Deputy Superintendent, be appointed an Educational Commissioner to the Exhibition on behalf of the Department, and that he be specially authorized to carry out the foregoing suggestions, if approved by the Government.

"The favour of an early reply is requested, so as to enable me to communicate by circular with the School Trustees on the subject, without delay."

To this letter, the Hon. Mr. Crooks made the following reply:—

"In reply to your letter of 3rd instant, I beg to state that an appropriation will be asked from the House to cover the necessary expenditure in connection with a proper representation of the Educational Department at the Philadelphia Exhibition. Your suggestions appear to be such as will secure that object. The Deputy Superintendent will receive the authority he desires for enabling him to carry out your suggestions."

In accordance, therefore, with the foregoing letters, I would suggest that each School Trustee Corporation desiring to aid the Department, in promoting the Educational success of the Province at the proposed Exhibition, would send to the Department, as soon as convenient, the following:—

1. Two photographs, giving a perspective view from the most striking point, of not less than fifty feet distance, of the interior of the School Buildings alone. Each photographic sheet of a one-story building to be exactly 7×9 inches in size, and the building itself in the photograph to be 6×4 inches. Each sheet of a two or three story building, to be 10×12 inches in size, and the building in the picture 6×8 inches. In all cases the photographs are to be sent unmounted, with the name of the school pencilled on the back. A description of the building, its size and date of erection, should also accompany the photographs. (See paragraph 6 of Enclosure A to this circular.)

2. Two plans in Indian ink of the school-room on each floor of the building. These plans to be exactly drawn to a scale of seven feet to the inch. (See paragraph 7 of Enclosure A.)

3. One plan in Indian ink of the whole school premises, drawn on the scale of thirty feet to the inch, and showing position of out-buildings, etc. (See paragraph 8 of Enclosure A.)

4. Such specimens of pupils' work as are enumerated below:—

(1) Writing books Nos. 4 and 6, of the authorized Departmental series to be completed by a boy and girl. The selection of completed copy books to be sent to the Department might be made by competition in each school, under the direction of the Trustees. The name, age, and class of pupil, and length of attendance should be written on the first page of the copy book. (See paragraph 13 of Enclosure A.)

(2) Two Drawing Books of the authorized series (Vere Foster's), and of the following numbers, to be completed, one by a boy and one by a girl. The selection by competition may be made in the same manner as the writing books.

As a minimum, any two of the following Drawing Books may be selected for each school or department of a school, by the Trustees:

C²—Familiar Objects—Advanced.
D²—Leaves and simple Flowers.
G¹—Garden Flowers.
I¹—Freehand Ornament.

M²—Marine Subjects.
O¹—Domestic Animals.
O²—British Song Birds.
Q¹—The Human Figure.

Drawing from objects may be substituted, provided they are from objects similar to those in the Books.

In accordance with the suggestions of paragraph 12 of Enclosure A, to this Circular (respecting scholars' work), each specimen is to be accompanied by a certificate in the following form, which will be provided by the Department, and supplied on application. (See paragraph 14 of Enclosure A.)

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|--|--|
| <ol style="list-style-type: none"> 1. Done in the _____ of _____ 2. Class to which the pupil belongs in the school. 3. First draft or copy? 4. Time allowed? 5. Age and Sex of the pupil? 6. Time the pupil has been under instruction in drawing? 7. Is it a selected specimen from a number of others? 8. Is it one of the regular lessons with usual time? 9. Date of the performance? | <ol style="list-style-type: none"> 10. A copy, or original design? 11. If a drawing, whether from a copy or an object? 12. Whether done for the exhibition, or taken from the ordinary routine work of the school? 13. It is essential that a certificate from the teacher should appear at the foot of each drawing, to the effect that the work was done entirely by the scholar named, without any touches by another hand. |
|--|--|

(3) Two specimens (one by a boy, and one by a girl) of map drawing, of the same sized sheet, as a page in Lovell's General Geography. The Map itself to be at least 7 inches by 9. (See paragraph 15 of Enclosure A.)

(4) Specimen of girls' hand work, plain and fancy, as explained in paragraph 17 of Enclosure A, to this Circular. Also Enclosure C, No. III.

(5) Any other example of school instruction or specimens of pupils' work which the Trustees might think desirable to send.

In order to obtain the fullest information in regard to classification, character and style of educational articles which it is proposed to send to the proposed Exhibition, the following letter was addressed to General the Honourable John Eaton, United States Commissioner of Education, whose Bureau is "the Central Agency for carrying out the Educational Plans of the Exhibition":—

"I have the honour to state, as this Department intends, with consent of the Government, to take part in the proposed Centennial Exhibition at Philadelphia next year, the Chief Superintendent would feel greatly obliged if he could obtain from your Department 75 copies of No. 5 of your Bureau circulars for distribution among our School Inspectors, in connection with a circular on the subject. If sent by express, C. O. D., the Department will gladly meet the expense."

To this request the following gratifying reply was received, dated "Department of the Interior, Bureau of Education, Washington, D.C., Nov. 5th, 1875:—

"I am interested in your letter of the 3rd instant, requesting seventy-five copies of Circular No 5, 1875, published by this office. I take pleasure in complying with your request, and will forward the parcel by express.

"As you seem interested in the subject, I also enclose with this letter some further development of one portion of the project, being suggestions for the institutions for superior instruction.

"If you should find these useful, I can supply you with a limited number of them.

"I am very happy indeed to learn of the determination of your Department to be represented at Philadelphia."

From the document thus kindly furnished to the Department by General Eaton, I have made out several extracts, and have appended them to this Circular. As a limited number only of the pamphlet has been received, a copy has been sent to each High and Public School Inspector, so that reference can be made to it, if necessary.

The photographs, plans and specimens should be sent to the Department not later than the 15th of February, 1876. The selection of articles to be made by the Department, for the Exhibition, cannot be deferred longer than that date, and it will be made from the contributions received up to that time.

ENCLOSURE A.

PRACTICAL SUGGESTIONS RESPECTING THE PREPARATION OF MATERIAL FOR THE EXHIBITION OF AMERICAN EDUCATION AT THE INTERNATIONAL CENTENNIAL EXPOSITION AT PHILADELPHIA IN 1876.

The National Bureau of Education at Washington, has been designated by the Centennial Commission as the Central Agency for carrying out the plans for the education department, and as the organ of communication on the subject with State and municipal authorities, institutions, and individuals.

1. A considerable number of enquiries have come to the office with regard to the form of State organizations, the Commissioner of Education takes this opportunity to suggest that, where appropriations have been made by States, and commissioners appointed to prepare the State representation for the Centennial, a committee be designated by this commission, consisting of the State School officers and others of well known fitness, to take special charge of the State Educational exhibit. This plan has already been adopted in several States with the happiest results.

2. It is difficult to express in a classification or programme of arrangements all the details of the methods by which education will be illustrated: (1) as increasing the productiveness of industry; (2) by diminishing pauperism; (3) as diminishing vice and crime; (4) as increasing the public wealth; and (5), as specially qualifying man for the pursuits of life, and the duties and privileges of citizenship. It is hoped that no one who has worked out any valuable material which will contribute to this end, will hesitate to make it known.

3. The duty of the educator in this matter is twofold: (1) to aid in the exhibit of educational facilities; and (2), to use the material thus collected at the Exhibition for the purpose of future instruction.

4. For the purpose of utilizing and extending the benefits of the Exhibition, one of the most important instrumentalities is that of reports thereon of competent experts, and it is therefore suggested as desirable that, in all cases where it is practicable, educational authorities, organizations, and institutions, should designate suitably qualified persons to examine and report on classes, groups, or individual objects.

5. In order that persons desiring to co-operate may not waste time in trying to learn what the material of the proposed Exhibition should consist of, the following more particularized suggestions have been prepared at the request of the commission:—

Buildings and Grounds.

6. There should be full-sized specimen buildings of Infant-Schools and Kindergarten Schools, the "National School," or the ungraded country school, the graded village school with from three to six rooms, with the whole of their belongings and equipments, from the different States of our country, and from foreign countries. There should also be exhibited a full-sized American pioneer log school-house, with its appropriate fittings and furniture, as an interesting and significant illustration of an important agency in our civilization, as well as adobe and sod school-houses from the south-west and north-west; also a structure comprising a model school-room, with all its belongings, adapted to a large village or city elementary school-building, with many school or class-rooms, this structure not pretending to be a model school-house. Views: elevations, perspectives, plans and drawings; photographs and engravings; historical, representative, and ideal educational buildings; and samples of the best Public School edifices—rural, village, and city—with working plans, ought also to be presented. There should be graphic representations of heating, and ventilating apparatus and appliances, photographs and drawings of interiors, photographs of interiors with pupils in various situations, for the stereoscope (of which interesting specimens were sent from New York to the Vienna Exposition).

7. Views and plans should be marked with the dimensions of buildings and date of erection. Representations of buildings, unique in character and excellence, should be prepared for wall-exhibitions. Others should be put up in portfolios, lettered with the designation of the State and city or town, and name of school or institution, and accom-

panied with printed or manuscript description of the peculiar features, with the cost, material of construction, date of erection, name of architect, &c. Special representations and descriptions of improved arrangements and apartments, such as drawing-rooms, lecture-rooms, chemical laboratories, apparatus-cabinets, assembly-halls, rooms for gymnastic exercises, play-rooms, clothes-rooms, teachers' rooms, teachers' conference rooms, recitation-school-rooms, vestibules, water-closets, &c., are desirable.

8. Plans of grounds, with dimensions, points of compass, and location of building indicated; examples of architectural skill in adapting buildings with symmetrical rooms to irregular city lots; maps of grounds, showing the designs for ornamentation; representations of school gardens, and designs for the same, are also appropriate.

Furniture and Fittings.

9. Teachers' desks, tables, and chairs; scholars' desks, tables, benches, chairs, and settees, approved specimens of such as are in actual use from State and municipal authorities and institutions; historical specimens illustrating progress; contributions from inventors and manufacturers—only one specimen of a type, and not all the sizes; accompanying statements of peculiar features and supposed excellences and advantages of dimensions, respective heights of seat and desk of each size, and relative position of seat and desk as to distance (prices in detail), cabinets for specimens of natural history and apparatus; cases for reference and library books, for portfolios of drawings, &c.; contrivances for the preservation and suspension of maps, window shades, inside blinds, &c., should be exhibited.

10. All articles of this class should be *samples* in the true sense of the word;—that is, such in quality, as respects material and finish, as those in use or made for sale.

Scholars' Work.

11. This is an extremely important division of the educational exhibition, though, with the exception of drawing, it is not showy in its character. It is not an easy task to arrange a satisfactory scheme, nor will it be easy to carry out the best arranged plan. Much must be left to the taste, judgment, invention and fidelity of teachers. Although the results of instruction belong to the mind, yet they are to a great degree capable of ocular representation, and all written examinations are based upon this presumption, and upon a little reflection it will be perceived that the scope of this division is very large. It comprises every exercise and performance that is susceptible of a graphic representation; all the work of the pen and pencil, and in addition, mechanical constructions and productions, modellings and carvings, whether imitations or original designs.

12. It is essential that each exhibit should be just what it purports to be, and each collection of papers bound up together, or in any way arranged in a set, and each separate individual paper or production should carry on its face a distinct indication of the facts as to its execution necessary to judge of its merits: such as the grade or kind of institution or school; the class in the institution or school; whether a first draft or a copy; time allowed; age and sex of pupils doing the work; whether selected specimens or work of entire class; whether a general examination, an exercise in review, or a regular lesson, with usual time of preparation; date of the performance; whether a copy or an original design; in drawing, whether from flat or round; whether done with reference to the Exhibition or taken from ordinary routine work; the county and State; with the town or city. It is obvious that productions, without the indication of the essential facts as to their execution, have little or no value for purposes of comparison, and therefore for the purposes of an instructive exhibition.

The following should be exhibited:

13. Writing books completed, of all grades. Specimens of writing should be written on paper of the size and shape of an ordinary writing-book leaf, unruled, ruled by hand, or machine-ruled for the purpose, and neatly bound, the work of a school or class in a volume; individual specimens, on larger paper, of ornamental penmanship, for portfolios or framed for wall exhibition.

14. Drawing-books completed, also specimens for wall exhibition; two or three speci-

mens of different kinds, free-hand, geometrical, &c., of each grade of a public school course, from the lowest primary class to the highest in the secondary or high school.

15. Map-drawing, from memory and from copy, with or without printed skeleton ; paper of the size of the ordinary quarto school atlas ; written exercises, comprising English compositions, themes and translations in different languages ; exercises in the various elementary branches, exercises in the higher studies, literary, scientific, æsthetic, professional and technological dissertations.

16. Written exercises should, as a rule, especially those of an elementary character, be of the regular letter-sheet size, with margin for binding, unruled, ruled by hand, or machine-ruled.

17. As it is desirable to encourage girls' handiwork in school, it is hoped that specimens of both plain and ornamental will be contributed. The smaller articles may be conveniently arranged for exhibition, in large portfolios with card-board leaves. Larger ones may be placed in vertical or horizontal show-cases. If girls have learned in school to cut and make their own dresses, samples should be sent.

18. It is suggested that exercises prepared especially for the exhibition be commenced simultaneously on the 1st of February, 1876.

ENCLOSURE B.

REVISED CLASSIFICATION OF EDUCATIONAL SUBJECTS.

Educational Systems, Methods, and Libraries.

The following is the educational classification published by the Centennial Commission :—

Class 300.—Elementary instruction : Infant-schools and Kindergarten arrangements, furniture, appliances, and modes of training.

Public schools : Graded schools, buildings and grounds, equipments, courses of study, methods of instruction, text-books, apparatus, including maps, charts, globes, &c. ; pupils' work, including drawing and penmanship ; provisions for physical training.

Class 301.—Higher education : Academies and high schools.

Colleges and universities ; Buildings and grounds ; libraries ; museums of zoology, botany, mineralogy, art and archaeology ; apparatus for illustration and research ; mathematical, physical, chemical and astronomical courses of study ; text books, catalogues, libraries, and gymnasiums.

Class 302.—Professional schools : Theology, law, medicine and surgery, dentistry, pharmacy, mining, engineering, agriculture and mechanical arts, art and design, military schools, naval schools, normal schools, commercial schools, music.

Buildings, text-books, libraries, apparatus, methods, and other accessories for professional schools.

Class 303.—Institutions for the instruction of the blind, the deaf and dumb, and the feeble-minded.

Class 304.—Educational reports and statistics ; National Bureau of Education ; State, city, and town system ; college, university, and professional systems.

Class 305.—Libraries : History, reports, statistics and catalogues.

Class 306.—School and text-books : Dictionaries, encyclopædias, gazetteers, directories, index volumes, bibliographies, catalogues, almanacs, special treatises, general and miscellaneous literature, newspapers, technical and special newspapers and journals, illustrated papers, periodical literature.

Institutions and Organizations.

Class 310.—Institutions founded for the increase and diffusion of knowledge, such as the Smithsonian Institution, the Royal Institution, the Institute of France, the British

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wledge, such
e, the British

Association for the Advancement of Science, and the American Association, &c., their organization, history and results.

Class 311.—Learned and scientific associations : Geological and mineralogical societies, &c., engineering, technical and professional associations, artistic, biological, zoological, medical societies, astronomical observatories. State and county exhibitions ; national exhibitions ; international exhibitions ; scientific museums and art museums ; ethnological and archaeological collections.

Class 313.—Music and the drama.

ENCLOSURE C.

The following articles named in the foregoing circular can be obtained at the People's Depository, *free by post*, at the prices named below :

- I. Departmental Copy Book No. 4., single 10 cts. ; per doz. \$1 10cts.
Do do 6., do 10 cts. ; do 1 10cts.
- II. Vere Foster's Drawing Books—any of the numbers purchased, single, 7cts. ; per doz., 75cts.
- III. Perforated Motto Cards, as per list furnished on application.

No 5.—FROM THE DEPUTY MINISTER OF EDUCATION FOR ONTARIO, TO THE HONOURABLE LETELLIER DE ST. JUST, CHAIRMAN OF THE CANADIAN COMMISSIONERS AT THE CENTENNIAL INTERNATIONAL EXHIBITION, DATED PHILADELPHIA, 24TH JULY, 1876.

I have the honour to state, that the Education Department of Ontario, has, as you are aware, sent to the International Exhibition, now being held at Philadelphia, a very large collection of school apparatus, maps, charts, models of school-houses, photographs of public and high schools in the Province, Reports, as well as numerous other articles of interest and value, illustrative of the growth and extent of the educational system of Ontario.

A very large proportion of the educational appliances has been manufactured in the Province, under the direction of the Department, expressly for use in the public and high schools. The Legislature has liberally provided a grant, by means of which the Department can supply these articles to the schools at one half of the cost price, and also for the supply on the same terms, of suitable prize and library books,—samples of which are included in our Educational Exhibit here.

The question has I understand been raised as to the expediency of allowing the articles which I have named, to be entered for competition with other similar products of mechanical skill or intellectual labour.

The ground taken, so far as I can learn, is, that the entire Educational Exhibition of Ontario is a government one, and, therefore, that none of the articles exhibited are eligible for competition with those of private individuals. I shall not venture to discuss a question so entirely within the Province of the Canadian Commissioners to deal with, I trust, however, that you will kindly bring under the notice of the proper authorities, and press upon their attention, the extent and great practical value of the Ontario Educational Exhibit. It would be grateful, I am sure, to the Honourable Mr. Crooks, Minister of Education, the Government of Ontario, and the Reverend Dr. Ryerson, late Chief Superintendent of Education, to know that their unceasing efforts to promote the educational advancement of the people of Ontario, had met with due recognition at the hands of those so competent to form a correct judgment in the matter.

No. 6.—FROM THE DEPUTY MINISTER OF EDUCATION FOR ONTARIO, TO JOSEPH PERRAULT, ESQUIRE, SECRETARY OF THE CANADIAN COMMISSIONERS TO THE CENTENNIAL INTERNATIONAL EXHIBITION, PHILADELPHIA, DATED TORONTO, 5TH OCTOBER, 1876.

I have the honour to state, that I notice in the telegraphic despatches of this morning that Messrs. Dannfeldt, Oldendorf, Johnson, Tallmadge, and Sickles, have been appointed to make a report on all the National, State and other collective Exhibitions.

You will remember that, on the 24th July, while in Philadelphia, I addressed a letter on this subject, through you, to the Chief Commissioner from Canada, Honourable L. de St. Just. I enclose a copy of that [the preceding] letter, and will thank you to take an early opportunity of bringing the matter before the five Commissioners named above, so that our Educational Exhibition may be thus formally brought under their notice.

No. 7.—REPLY TO THE FOREGOING BY JOSEPH PERRAULT, ESQUIRE, SECRETARY TO THE CANADIAN COMMISSIONERS, DATED PHILADELPHIA, 7TH OCTOBER, 1876.

I beg leave to inform you that I have this day brought before the Educational representation of United States, the importance of the Ontario Department in that specialty.

No. 8. REPORT BY THE DEPUTY MINISTER OF EDUCATION ON THE EDUCATIONAL APPLIANCES EXHIBITED AT THE CENTENNIAL EXHIBITION BY THE EDUCATION DEPARTMENT OF ONTARIO, FOR THE USE OF THE FIVE JUDGES ON NATIONAL AND COLLECTIVE EXHIBITS.

NOTE.—In addition to bringing the Ontario Education Exhibit before the five Judges of the National and Collective Exhibits, the Deputy Minister prepared the following Report on the subject, and subsequently had an interview with the Judges, in which he explained matters not named in the report :—

The Education Department of Ontario is a branch of the Government, the Honourable the Minister of Education being a member of the Cabinet, having a seat in the Legislative Assembly of the Province.

The following is the official staff of the Department :—

The Honourable Adam Crooks, M.P.P., Q.C., &c. D.,
Min. of Education.

J. George Hodgins, LL.D., F.R.G.S.,
Deputy Minis' r.

Alexander Marling,
Secretary and Accountant.

Francis J. Taylor,
Chief Clerk.

John T. R. Stinson,
Clerk of Statistics.

W. H. Atkinson,
Clerk of Correspondence.

J. H. J. Kerr,
Assistant Clerk of Correspondence.

F. T. Griffin,
Assistant Accountant.

A. C. Paull, Frank N. Nudel, J. Green, H. P. Davies,
Assistants in various Branches.

COMMITTEE OF COUNCIL ON EDUCATION.

- The Honourable Oliver Mowat, M.P.P., Q.C.,
Attorney-General.
- " Adam Crook, M.P.P., Q.C.,
Provincial Treasurer and Minister of Education.
- " Timothy Blair Pardee, M.P.P., Q.C.,
Commissioner of Crown Lands.
- " Christopher Finlay Fraser, M.P.P., Q.C.,
Commissioner of Public Works.
- " Samuel Casey Wood, M.P.P.,
*Provincial Secretary, Commissioner of Agriculture,
Immigration, &c.*

DEPOSITORY BRANCH.

- S. P. May, M.D.,
Superintendent of Depository.
- H. M. Wilkinson,
Cashier and As. Superintendent.
- S. A. May, S. B. Sykes, W. Sweeten, R. J. Bryce, R. L. Cathron, J. A. Sangster,
A. F. Lobb, *Assistants.*

THE CENTRAL COMMITTEE OF EXAMINERS.

The Reverend Professor Geo. Paxton Young, M.A., *Chairman.*

James A. McLellan, LL.D., J. M. Buchan, M.A., S. Arthur Marling, M.A.
High School Inspectors.

John J. Tilley, G. W. Ross, John C. Glashan, James Hughes, *Public School Inspectors.*

The Department has control of the Public and High Schools and Collegiate Institutes. To it is entrusted the administration of the law regulating these schools, the payment of Legislative grant, made annually by the Government, in aid of these schools. It also prescribes for them approved text-books, and supplies them through its Educational Depository with libraries, maps, globes, apparatus, &c. In connection with this matter, I append herewith a statement on the Educational Institutions of Ontario, prepared by the Honourable the Minister.—[See pages 44-53 of this Report.]

In order to supply our schools most effectively with these important and necessary adjuncts to our schools, an Educational Depository was established about twenty-five years ago, from which the schools are supplied. The functions of the Departmental Depository are, to have prepared under its direction specimens of apparatus, &c., for tender, maps, charts, diagrams, and get them manufactured in the Province at the cheapest rate, also to authorize approved prize and library books, and then to supply them at cost price to the schools.

In addition to supplying these articles at cost price, through the liberality of the Legislature, a sum equal to that sent to the Department by the trustees is given by it from a grant annually voted for that purpose; so that if a school or municipality sends any sum above \$5, books, apparatus, or other school appliances to double the amount are sent to the schools. Thus, for example, a book published in England at 1s. sterling, is supplied by the Department at 18 cents currency, the trustees pay 9 cents, and the amount paid from Government apportionment is 9 cents.

This system encourages the establishment of School Libraries and the distribution of prize books, and is also an inducement to Municipalities and School Trustees to provide a proper supply of maps, globes, school apparatus, &c., for their schools, the results are that

the Depository has already established over 1,400 libraries, and have sent out more than a million library and prize books; 3,000 globes; 50,000 maps; 25,000 sets and pieces of apparatus, and 300,000 object lessons.

The school apparatus, maps, globes, &c., displayed at this Centennial Exhibition are samples of the articles supplied to the Public and High Schools and Collegiate Institutes of Ontario through the Depository. We respectfully claim for this exhibit an international award for the comparative excellence and cheapness of the articles exhibited, the chief part of which were made in Ontario under the direction of this Department.

Catalogues of exhibit (a copy of which is appended) have been largely distributed among the visitors here. The effect has been to encourage the establishment of a similar system elsewhere. We understand that at least three other countries are desirous of establishing similar depositories for the supply of similar articles to their schools.

I append herewith the views of experienced educators on the establishment of the Depository.

I append herewith a summary list of the classes of articles contained in the Ontario Educational Exhibit.

1. Historical and Statistical Reports relating to the 'High and Public Schools under the Department.
2. Reports from other Educational Institutions in Ontario.
3. Large Photographs of Universities, Ladies' Colleges, &c.
4. " of Public Buildings in Ontario, including Asylums, Public charities, &c.
5. " of Public and High School Buildings, Educational Department, Normal and Model Schools, Collegiate Institutes, High Schools; Union, High and Public Schools, and Public Schools.
6. Models of School Buildings constructed under the direction of the Deputy-Minister of Education.
7. School Plans, Interior, Exterior, and Grounds.
8. School Fittings and Furniture, including Desks and Seats, Model Gymnasium, Map Stand, &c., &c.
9. School Work—Map Drawing, Drawing from Objects, Drawing from Books, Penmanship, &c.
10. Specimens of Drawing from the School of Practical Science, Toronto.
11. School method and organization—Examination Papers—Registers—Blank Reports—Honour Rolls—Merit Cards, &c.
12. Text Books authorized for use in the Public Schools, January 1876. 1. English, 2. Arithmetic and Mathematics, 3. Geography and History, 4. Physical Science, 5. Miscellaneous.
13. List of authorized Text Books for Collegiate Institutes and High Schools, January 1876. 1. Latin, 2. Greek, 3. Ancient History, Classical Geography and Antiquities, 4. French and German, 5. English, 6. Arithmetic and Mathematics, 7. Geography and History, 8. Physical Science, 9. Miscellaneous.
14. Books used for examination of Teachers on Natural Philosophy and English Literature.
15. Books relating to the profession of Teaching.—1. Teachers' Professional Library Books, 2. Science of Education, 3. Practical Education, 4. Theory and Practice of Education, 5. Home and Early Education, 6. Kindergarten and object Teaching, 7. The Sciences, 8. Teachers and on Teaching, 9. Physical Education, 10. Educational Biography and Sketches, 11. Miscellaneous, 12. School House Architecture, &c., 13. Self Education and Personal Helps for young men, 14. Aids to Female Teaching and Education, 15. School Life Illustrated, 16. English Language and Philology, 17. Speaking and Elocution.
16. Library and Prize Books:—1. History, 2. Voyages, 3. Biography, 4. Literature, 5. Zoology, Ethnology, etc., 6. Physiology, 7. Botany, 8. Agriculture, 9. Chemistry, 10. Geology, 11. Natural Phenomena, The Microscope, etc., 12. Natural Philosophy, Arts,

Manufactures, etc., 13. Teachers' Professional Library, 14. Practical Life, Religious and Moral Tales, Essays, etc., 15. Fiction.

17. Tablet Reading Lessons with pictures.

18. Illuminated Texts and Mottoes for hanging on the School wall.

19. Spelling Games, Writing, etc.

20. Arithmetic and Geometry.

21. Drawing Books.

22. Drawing Materials, Models, etc.

23. Music Charts, Books, etc.

24. Chronological Charts.

25. Historical Charts, etc.

26. Men in Armour, Philosophy, etc.

27. Collection of the Seals of Great Britain from the time of William the Conqueror to Her Majesty Queen Victoria.

28. Geography and Astronomy, Topographical Illustrations, Terrestrial Globes—Globes for School Prizes, Raised and Physical Globes, Maps, Raised Maps, Physical Diagrams, Atlases, Geographical Lessons, Dissected Maps, Geographical Cubes, etc.

29. Astronomical Illustrations—Celestial Globes and Orreries, Planetarium, etc., and Astronomical Charts.

30. Geology, Mineralogy and Crystallography.—1. Geological Cabinets, etc., Crystallography and Geological Charts.

31. Botany—Models of Flowers, Botanical Charts, Botanical Object Lessons, Cabinets, Miscellaneous Botanical Apparatus, etc.

32. Zoological Specimens.—1. Pisces ; 2. Amphibia ; 3. Reptilia ; 4. Aves ; 5. Mammalia.

33. Charts and Diagrams.—Mammalia, Fishes, Amphibia, Reptiles, &c.

34. Natural History Object Lessons with Reading.

35. Kindergarten Natural History Object Lessons.

36. Ethnography.—Busts, ancient and modern, life size ; Busts reduced in size—statuettes.

37. Anatomical Models, &c.

38. Anatomical and Physiological Diagrams.

39. Chemical Laboratories.

40. Apparatus for experiments with Gases.

41. Apparatus for determining the specific quantity of liquids.

42. Chemical Thermometers.

43. Chemical Thermometer for applying heat.

44. Apparatus for Weighing.

45. Apparatus for distillation, &c.

46. Apparatus for testing Alkalies, Mercury, Hot Solutions, &c. Supports for apparatus, and miscellaneous.

47. Chemical Diagrams.

48. Pneumatics.—Apparatus for exhausting and condensing, Meteorological Instruments, Charts and Diagrams.

49. Acoustics.

50. Light, Optics.

51. Heat and Steam ; Apparatus ; Diagrams.

52. Electricity.—Frictional, Voltaic, Magnetism, Electro Magnetism, &c., Charts and Illustrations.

53. Mechanics.—Apparatus, Charts and Illustrations.

54. Hydrostatics and Hydraulics.—Apparatus, Chart and Diagrams.

55. Kindergarten Illustrations.—Trades—Working Models, &c. Building Models.—Models for Working Kindergarten Toys, &c.

56. Appliances for teaching the Blind from the Institute for Blind at Brantford.

NOTE.—The Judges made an award to the Department, which was confirmed by the United States Commissioners in the following terms:—

REPORTS ON AWARDS—COLLECTIVE EXHIBITS.

INTERNATIONAL EXHIBITION, PHILADELPHIA, 1876.

The United States Centennial Commission has examined the Report of the Judges, and accepted the following reasons, and decreed an award in conformity therewith. Philadelphia, December 16th, 1876.

The undersigned, having examined the product herein described, respectfully recommends the same to the United States Centennial Commission for the following reasons, viz :—

For a very extensive and attractive collection, illustrative of the growth and extent of the educational system of Ontario, including a great variety of apparatus, maps, charts, models of school-houses, photographs of school buildings, and reports.

(Signed) C. JUHLIN DANNFELT,
Signature of the Judge.

Approval of Group Judges.

(Signed) J. A. JOHNSON, (Signed) T. E. SICKLES,
E. OLDENDORFF, T. W. TALLMADGE.

A true copy of the record,

(Signed) FRANCIS A. WALKER,
Chief of the Bureau of Awards.

Given by authority of the United States Centennial Commission,

(Signed) A. T. GOSHORN,
Director-General.
(Signed) J. L. CAMPBELL, (Signed) J. R. HAWLEY,
Secretary. *President.*

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ERRATA.

- Page 29, For R. H. Dana, Esq., read Mrs. R. I. Davis.
 " 97, For Mr. A. Tolman Smith, read Mrs.
 " 236, For *hon.*, read *hon.*

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ERRATA.

H. Dana, Esq., read Mrs. R. H.

A. Tolman Smith, read Mrs.
read *log*.